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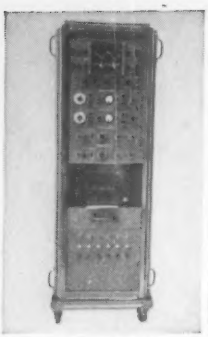

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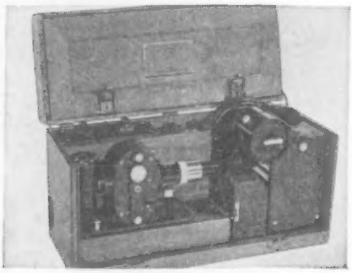

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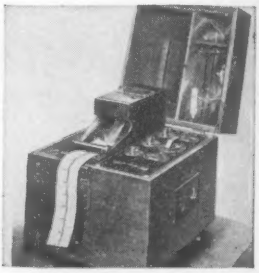

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MILITARY MEDICINE

ORIGINAL ARTICLES

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The Utilization of Reserve Medical Personnel During Total War

By

BRIGADIER GENERAL H. H. TWITCHELL, USAF (MC)*

SOMETIME back, when the Arrangements Committee asked if I would present a paper at this meeting, I accepted and very glibly agreed to the topic which has been announced for me. At the time of the request, I felt that it was an excellent topic; I still do. I did not realize at the time quite how deep and bottomless a pit into which I had put myself. Actually, there really is no end to the thought concepts, and the policies that could be promulgated on the planning for "Utilization of Medical Personnel During Total War." For example, we have to consider, what do we mean by "total war"? There are many ideas and beliefs concerning what a next total war will be like. The thoughts about how such a war will be conducted and just what will happen are limited only by the number of people with whom you talk and the number of articles that you choose to read.

Our most talented and most experienced people in this field do not completely agree on what will happen. This is evidenced by the honest differences of opinion of our Secretary of State, the Secretary of Defense, our individual Service secretaries, and our Service Chiefs of Staff. I am sure that each one of them is wholly sincere and that they have based their decisions and opinions on the best possible information and advice. If their opinions can differ as widely as they do, how can we as professional people with quite a different training and background arrive at conclusions which are more likely to be right? I do *not* believe that we can! I *do* believe that we can take a good, honest, broad-minded look at what can happen.

We must not play ostrich and hide our heads in the sand! Let us be honest with ourselves. If we have a World War III in which nuclear weapons are used, the expression "Hell on Earth" will be a minimizing description! I think we all know this, but I doubt that we are really admitting it to ourselves. In fact, I think that we are cheating ourselves terrifically. *ALL* of us, and by that I mean those of us in the military services, and in the Federal Civil Defense Administration, have as a part of our mission the planning for and the use of our medical resources in the time of war. In such planning, I am sure we have figured out many times, by many formulae, the total number and various kind of casualties we will suffer if our country is attacked with nuclear weapons. The figures are appalling, no matter what system you use. In fact, they are so appalling when estimated for any one small chosen area, and when we consider the same thing has probably happened in 50 or 100

* Delivered at the Ninth Naval District Medical-Dental Symposium held at the U. S. Naval Hospital, Great Lakes, Illinois, on 26 September 1956. General Twitchell is Surgeon, Continental Air Command, Mitchell Air Force Base, New York.

other areas of the country, we are emotionally unable to understand just what it means!

We cannot see the forest for the trees!

Consider again, for a moment, the terrific impact on local medical capabilities of the various individual and comparatively small disasters which have occurred in widely scattered parts of the country. I will not name them—you know about them, and in general, you know how terrific were the medical demands. You also know that the overall handling in some of these situations was not of the high professional standard which we have learned to expect. Consider just how critical the medical situation will be if the severity of each of these disasters were increased 1000 times. Consider too that this same type disaster has occurred in 50-100 of our other major population centers—almost simultaneously.

This is when we begin to hide our heads like ostriches!

Ordinarily, we do not really consider it much beyond the point of—"just how it would affect each one of us individually."

In looking over the program for this meeting, I see that Colonel Joseph Shaeffer is scheduled to talk to you on "Mass Casualties."[1] I have heard Colonel Shaeffer talk on related subjects on several occasions. He is one of the few people who really calls a spade a spade! He forcibly brings home a thought that needs to be preached continuously. To me, that thought *is* that during the first few days of nuclear disaster, we, as physicians, will have to be thinking and acting in a manner for which we are neither training, nor adequately planning at the present time. The immediate problems at that time will be a tremendous workload of emergency first aid care, and national reorganization in order to permit the greatest possible military retaliation.

To retaliate, we must approach our casualties with the view of getting the greatest number of people back to work in the shortest time possible. Gruesome as it sounds, it means that many critically injured people will die for lack of highly specialized time-consuming procedures that we will not be able to perform because of lack of proper space, lack of proper material, and probably most of all, lack of properly trained people! I say "lack of space" because it seems obvious that an undetermined number of our hospital facilities will be destroyed. I say "lack of material" because no one can predict just how much of the presently stored medical supplies may be within the radius of the destructive forces of the nuclear explosion. I say "lack of properly trained people" because nuclear detonation will be no respector of personalities who are within the reach of its devastating potential! Communications will be nonexistent or greatly overloaded! Transportation facilities that remain will be tremendously overtaxed! Sources for electricity and gas, which are usually accepted as always present, may not be available for days! Water supplies may be interrupted or contaminated to the extent of non-usability for days or even weeks! Under these conditions, we cannot hope to practice medicine under the concepts in which we presently work. Indeed, it will be necessary to do a complete 180° turn, as is said in the Air Force, when we turn back to a heading exactly opposite to the one in which we have been flying!

Today, we think in terms of very highly specialized professional care involving one patient. We think and practice medicine, as we should, with the viewpoint of being able to pull patients back from the very grip of death. We take great pride, and we should, in our advanced technical knowledge which permits us to reactivate the heart of the patient in cardiac arrest. These things we can do when we have ample available ancillary support, and when we have abundant assistance to provide great amounts of detailed post-operative care. That is the way to practice medicine in peacetime. Every patient can and should benefit from every bit of technical knowledge and capability available to our profession.

In everyday peacetime practice, we can consider the *individual.*

In case of nuclear attack, we will have to make that 180° turn, and consider the *masses—not* the *individual.*

The very existence of our lives and our country will depend upon the ability of the medical profession to return the greatest possible number of the people back to work in the shortest possible time. Rapid, efficient, first-aid treatment for the masses of injured will be the medical mission, for the first few days, after all-out nuclear attack. We are going to find it difficult to change our concept of the practice of medicine and leave the critically injured to die when we know that if we had the facilities, material, and people, we could probably save them.

I believe this sudden change of concept may be one of our greatest medical problems.

I know we are not emphasizing this concept enough in our training for all-out war. Why not? We, you and I, are playing ostrich and won't accept it during peacetime. Deep down in our hearts, we know it is a true concept and the only realistic one by which we can successfully treat mass casualties in the event of nuclear war.

Earlier in this paper, I have implied that lack of people qualified to render high quality first-aid care would be one of our biggest problems. Not only do we lack people, we lack full organization of those presently available. I believe that the best potential of saving the greatest number of lives, in a catastrophic situation like this, will be the ability of every individual to perform reasonable first aid for himself and his buddy! With the majority of the population of the United States trained this way, it is easy to conceive of the decreased demands on our professionally trained people to render care for the minor injuries. The more we can release the highly trained personnel from the requirement to treat minor injuries, the more time they can devote to the care of the seriously injured.

I have read that First Aid courses are required instruction in the public schools of Russia. It would seem that such courses would be a major step forward in the medical preparedness of this country. Not only is it a good project of preparedness for war, it is training that may be of life saving value to thousands each year during peacetime.

Let us consider the medical aspects of catastrophe in a broad way.

What may actually happen if this nation is faced with a surprise attack by nuclear weapons? It is my opinion that, medically, we will have to go through three distinct phases. First, a period of first aid and confusion. Second, a period of definitive care and survival. Finally, a long period of medical rehabilitation for enormous numbers of casualties. As a result of any surprise attack of major proportions, there is bound to be a certain period of confusion—in spite of excellent planning and many practice alerts. It is impossible to make practice alerts sufficiently realistic to the majority of people. Communications and transportation will be confused for many hours at least.

How long the confusion will last, and how severe it will be, cannot be accurately predicted. It will exist. The length and severity can be reduced only by adequate and more realistic training.

During this initial period of confusion, what are all of us, as professional people, going to do? *First,* we are human—we are going to be worried about our families. What each one of us does along that line can be answered only by the individual at the time. *Second,* each professional person will be surrounded immediately by people in need of help. It is probable that at that particular time, material with which to provide care for more than a few will be lacking. Obviously, in peacetime, one just does not carry enough medical supplies to treat the injuries of an entire neighborhood in a disaster situation. Everywhere demands will greatly exceed capability. *Thirdly,* during the time that we as individuals are doing all we can to take care of those immediately around us, we will be thinking about the overall plan and our directed assignment to go to a specific place and to be part of an organized team—be it a Civil Defense team, or a specific mobiliza-

tion assignment. We must remember that getting from any one place to another, or communicating with others, is going to be exceedingly difficult. I believe that moderate confusion will remain evident for at least two to three days, unless we improve our emergency plans and practice very realistically those improved plans.

When communications are re-established and means of travel improved, we will pass into what I call the second major phase—that of definitive care and survival. Early in this phase, and as rapidly as we can overcome confusion and establish communications, I am sure we will put into action the various military plans, and Civil Defense plans which will group our limited numbers of professional personnel into the teams which are so vitally necessary to produce the best possible medical results. Experience has shown that organized medical teamwork and individual cooperation is of the greatest importance in the rapid professional solution of any disaster situation.

It appears to me that it is at this point in my so-called "second phase" that *you,* as individual members of the Reserve components, become tremendously important cogs in the military medical machinery. Proper mobilization and utilization will alleviate suffering and save lives by definitive type medical care.

At the same time the capability to continue to exist may be a terrific problem; for example—are our water supplies contaminated? How? What can our ancillary professional people do to correct this? Are we making adequate plans and training enough people for this phase of our problem? I doubt it!

I believe we are apt to think in terms of the present adequate availability of working stills, of large flocculation beds, and of similar up-to-date mass production items. One question alone indicates how these problems can be compounded a thousand times. What will be obtainable as source energy to run the technical equipment available?

How long will this period last? I would not hazard a guess. It depends upon how successful the enemy has been in his surprise attack—how effective our defenses have been—how effective our retaliation has been—and how well we are prepared and trained to meet a disaster of the proportions we can anticipate from a nuclear attack.

Are you medically prepared? Is your training along lines which will prepare you to meet the problems that will occur during these first few days?

I will leave these questions for you yourself to answer.

If your answers are negative, I am sure you have within yourselves the capability to improve your training.

The third phase is that of medical rehabilitation. This will run concurrently with the overall rehabilitation of our nation. To me, the nature of this problem is such that it involves policies and principles beyond the scope of this group at this time. We can only say that the time, the personnel, the facilities, and the cost that will be required are of a nature that will encompass the entire medical profession, and even the political structure of the nation. The present problems of the Veterans Administration will be considered small when compared to such a problem as this!

We have talked at length on concepts of total war. We have talked about the effects on the masses of people. I am sure that you, as individuals, want to know the answer to this question, "Just how will I be used in event of mobilization?"

There is no doubt in my mind but that much has been learned about mobilization of professional people as a result of our previous wars, and the Korean incident. Experience has taught everyone the weak links in the chain! In each successive incident, utilization of professional personnel was definitely improved. There is every reason to believe that if another war occurs, still further improvement will be evident. I am sure that the system will never be so perfect that each and every officer will be called just when he wishes to be, that he will go just where he

wants to go, or do just exactly what he wants to do. That would be "Heaven"—I'm sure I said earlier that if we had another war it would be "Hell on Earth"—I am afraid it would not be possible to make the two situations match!

In arriving at plans for the best possible use of professional personnel, in case of mobilization, I am sure that all planners—Army, Navy, Air Force, and Federal Civil Defense—are cognizant of two major factors which definitely effect utilization. These two factors are Requirements and Capabilities. I would like to crudely compare these two factors to the making of a pie.

The first factor is the *Requirement* for professional personnel to meet the medical problem. The medical problem is—adequate medical care for the massive number of casualties which will occur if portions of our total population of 165 million people are subjected to nuclear attack. These medical *Requirements* are the ingredients that make a theoretical pie of tremendous size. *Capability* is the second factor. The capability to meet the problem rests on the shoulders of some 218 thousand doctors, 83 thousand dentists, and 55 thousand nurses—plus the other paramedical personnel now trained to support professional care. If we take these entire professional sources and consider them as ingredients of the theoretical *capabilities pie*, our capabilities pie, in comparison to the requirements pie, would not be nearly so large. If we think about it honestly, it is pretty obvious to all of us that in case of a major war in which nuclear weapons are used, our country is going to be *very, very* short of medical capabilities.

Realizing this, I then raise the question of whether we are exerting our training efforts in the right direction in order that we can use our limited capabilities in the best possible manner.

We are doing especially well in our training efforts, but are we on the target all of the time? Personally, I think we are hitting out in the number 3 or number 4 ring quite frequently! As I look over the program for this symposium, I find many excellent talks scheduled to be given by recognized experts in their specialty field. Practically every topic is related to specialized treatment of mass casualties. Such training will stand us well as we go in to the second and third phases of the three through which I have said we would go—that of "definitive treatment and survival," and that of "medical rehabilitation."

I have seen no talks scheduled which appear to train us for the phase of "Confusion and First Aid." Are we deceiving ourselves and saying, "Oh, we know all about that sort of thing?" Experience in Korea taught us that there was much to be learned by the majority of doctors who saw the wounded first. We learned that if the patient was going to arrive at a hospital in a condition that would permit definitive care, he had to have had good first-aid treatment early. I recommend that all of us, in our training programs for Reserve medical personnel, place more emphasis on improved first-aid treatment. Through our personal interest and training, we can stimulate interest in such first-aid training throughout the general public, and thereby probably save many, many lives.

Based upon previous mobilization experience, and certain concepts of total war, I am sure it is justified to say that the requirement for rapid, early mobilization of our medical Reserve professional personnel will be a *must*. I am sure that medical manpower will not be wasted—that every physician, dentist, nurse, and all other paramedical personnel will be utilized to their utmost capability and probably far beyond the presently accepted level of daily work load! Reservists will be required in special medical units to support certain military operations. Reservists will be required to man major hospital units in support of geographical areas of both military and civilian populations.

Reserve medical organizations can and will be the life line by which this nation will recover. In a time such as we visualize, the biggest portion of the answer to medical re-

covery is organization of our medical capabilities. Such organization is inherent in the Medical Reserve forces.

As individuals, during the first few days, before you can become identified with a specific job in a specific organization, you may be called to do almost anything in the field of medicine to save human life. The internist, the psychiatrist, the pathologist, the radiologist, the dentist, the veterinarian—all will be working around the clock, rendering active first-aid care to those with burn and blast wounds. In many cases, this professional work will be completely foreign to your daily peacetime practice.

As organization becomes effective, you will work into the specialized spot for which you are trained. As we go into rehabilitation, I am sure that no stone will be left unturned in the effort to utilize every individual in the field where he has had specialized professional training. Shortages in every specialty will be so great that highly selective assignments are a must. Those without specialty training will find themselves in great demand for major supporting roles. Those in supporting roles will share fully in the final results.

Gentlemen, in this talk I have tried to assume somewhat the roll of the "dog in the manger." I have emphasized the more serious side of the picture that ordinarily we do not think about. I have tried to point out the fact that if we have total war the medical problems may be far greater than most of us are usually willing to acknowledge. I have pointed out certain lack of medical potential. I have indicated areas in which I think our training is weak because we may be overlooking the important initial phase of nuclear war.

The trend of medical training today is toward specialization. Immediately after nuclear attack the need will be for superior first-aid care. Without this element of care, we may not exist to the time when specialized care will be required. I have indicated the great importance that Reserve medical forces will play, because their potentials are known and they can be utilized as a controlled organization.

I have not indicated how each of you, as an individual, will be utilized.

If I have caused you to consider that the problem may be greater than we usually think, and that there is room for each of us to do just a little more toward preparedness, then I will feel that I have accomplished my mission.

I strongly urge that you as an individual, and we as a united group with background experience in handling large numbers of casualties, consider methods of training many people to do first-aid tasks that will occur in any situation that produces large mass casualties. If that is successfully accomplished, then you can better apply the specialized knowledge you will acquire here. Only through great expansion of our present military medical capability, can we provide an adequate medical program that will be the backbone of support and recovery to both the military and civilian components of our nation, in case of another total war.

REFERENCE

[1] Shaeffer, Joseph R.: Treatment of mass mechanical injuries. Military Medicine, 118:314-318, April, 1956.

Disaster Did Strike

By

LIEUT. COLONEL MABEL HAMMARLUND, *Army Nurse Corps**

"THERE is a plane down with 66 aboard" was the message received at the Nursing Service Office about 1630 hours on Friday, July 13, 1956.

The Hospital Memorandum, "Emergency Operations Plan" was now to be implemented. The Chief of Professional Services, the Chief of the Surgical Service and the Chief of the Nursing Service made a quick survey of beds and supplies available and prepared for rapid admission and treatment of survivors. Doctors and medical technicians equipped with drugs, dressings, blankets and litters had been rushed to the crash area.

Our first indication that a plane had crashed was when a Fort Dix soldier brought one of the victims to the hospital emergency room. The soldier heard the crash while delivering mail to a unit on night maneuvers. He made his way through underbrush and mud toward the origin of the sound and found our first patient staggering and mumbling near the plane. The dazed survivor was taken to the Provost Marshal's office to report the accident, then rushed to the U. S. Army Hospital for treatment.

A military Aircraft C-118 bound for England from McGuire Air Force Base had plunged into the piney marshland in the Southwest corner of Fort Dix Military Reservation shortly after take off.

The first casualty was not burned nor revealed any indications that the plane had burned at the time of the crash. This being a possibility, we had to prepare for it.

The late afternoon weather had been turbulent with severe electrical storms, heavy showers and wind. The emergency power equipment at the hospital was being checked for use in a possible electrical failure. Nursing Service day duty personnel who normally would have departed were still present when the alert came. The patients on the wards had just been served their evening meal. Off duty Nursing Service personnel assigned to wards, Operating Room and Central Material were notified of the disaster and immediately reported to duty. The 331st Reserve General Hospital, here on two weeks' active duty, was notified and personnel from that unit volunteered to augment our staff.

Ward A-6, which is to the south and parallel to the X-ray department and the operating room, is the acute Surgical and Recovery Ward. It is a large 25 bed open ward. Oxygen and suction are available on both sides of the ward with individually regulated outlets. The beds are adjustable and equipped with infusion standards which can be inserted into any of the four corners. Supplies, sterile and non sterile, drugs and equipment which may be needed for resuscitation are kept in readiness. Patients remain on this ward as long as close observation or intensive treatment are needed. Parallel, to the south of A-6 are A-5 and A-4. A-5 was on a stand-by basis and A-4 was used for ambulatory patients.

If there were other survivors, we would need beds on A-6. There were twenty patients on A-6; two were accident patients, both critically injured, one in a respirator, nine were new post operative patients, and nine were 2-4 day old post operative patients who still needed intensive nursing care. The Chief of the Surgical Service ordered all post operative cases returned to their proper wards. The condition of the two accident patients did not warrant moving. The beds were made as recovery beds and placed in Trendelenburg position. Multiple position beds equipped with fracture boards were

* Present Address: Headquarters, Fourth Army, Fort Sam Houston, Texas.

conspicuously marked for proper utilization. The following blank forms were assembled and placed on the clipboard which normally hangs on the foot of each bed: a Doctor's Order Sheet, an Intake and Output Worksheet, and a Blood Pressure, Pulse and Respiration Worksheet. Personnel were instructed to use the upper blank section of the Doctor's Order Sheet to record initial notes, such as, time of admission, condition of patient, and emergency medications or treatment. Verbal orders given by doctors were recorded on the Doctor's Order Sheet. The medical officer signed the orders as soon as possible.

Ward A-5 was staffed, beds were made to receive casualties, and medications, supplies and equipment were secured. These two wards, A-6 and A-5 with 50 beds, were to serve as admitting wards. The waiting room in the Out Patient Clinic was cleared of furniture and arranged as a receiving and triage area. The emergency room, which is located directly adjacent to the waiting room and set up with stimulants, dextran, tracheotomy sets and oxygen, was prepared to give immediate life saving resuscitation. The waiting room of the Surgical Clinic, due to its proximity to the receiving area, was arranged to serve as a morgue. Soldiers and ambulatory patients were assigned as litter bearers or runners.

Ward A-6 was now ready to receive the most severely injured, A-5 to receive those less critically injured, the Out Patient Clinic waiting room to serve as a receiving and triage area, and the emergency room for immediate resuscitation area. In less than an hour after our alert we were ready to receive casualties.

Shortly before 1800 hours the second casualty arrived. He was conscious and shivering, as his clothes were water soaked and muddy. He was examined by a doctor and admitted to A-6. Other casualties arrived in all degrees of shock and in wet and muddy clothing. Since there had been no fire upon impact, our preparations were changed to some extent, particularly in the Central Material Section, and greatly lessened our anticipated nursing care work load.

The Chief of the Surgical Service served as triage officer. He was assisted by two other Medical Officers. The patients on field litters were placed on wheeled litters and were immediately seen by a doctor and admitted to the ward designated by doctor. All of these casualties would need close observation, and those whose vital signs indicated severe injury were sent to A-6. Patients whose condition indicated less severe injury were admitted to A-5.

On Ward A-6, the area adjacent to the Nurses' Office and ward entrance was cleared for litter reception. Here the patients were stripped of clothing, medically evaluated, and if unidentified, measures for identification were continued. A representative from the registrar's office catalogued, bundled and removed the patients' clothing and valuables from the ward. Patients who were conscious and appeared to be in early shock were placed in beds beyond the area equipped with oxygen and suction. The unconscious and seriously wounded were placed in the fully equipped area. All patients were treated for shock with external applications of heat and intravenous fluids. Blood was drawn for typing and cross matching at the time the infusion was started. Blood was quickly obtained from the blood bank and substituted for dextran. Blood transfusions were given in varied amounts, and veins were kept open with infusions of dextrose in water or saline. X-ray technicians were available with portable units. Tracheotomy, thoracentesis, venesection trays and suture sets were ready for use. Tracheotomies, suturing of minor lacerations, and the application of traction were accomplished on the ward. A small utility table with wheels was set up with Mizer trays of 2 cc and 5 cc syringes with needles for the administration of Tetanus Toxoid and other injections such as antibiotics and stimulants.

Army Chaplains of all faiths were present,

visiting patients in A-5 and A-6 and in the receiving area, offering spiritual assistance and reassuring patients.

By 2000 hours the last patient had been received, making a total of twenty-two. Ward A-4, which was on a stand-by for patients, was now rearranged to serve as an additional morgue. Army doctors and dentists who were specialists in general, orthopedic, and oral surgery consulted on all patients, as fractures, contusions, concussion and maxillo-facial injuries were common to many patients. After the patients on A-6 and A-5 had been reevaluated by the doctors, an exchange of patients was started, patients on A-6 with stabilized vital signs and with only apparent minor injuries were transferred to A-5 and those in A-5 with serious injuries were transferred to A-6. One casualty who was given resuscitation in the emergency room was admitted to A-6 and expired one hour later.

The majority of the diagnostic procedures were completed within the first few hours after admission. Numerous debridements were accomplished at the bedside using simple suture sets. Major debridements were performed in the Operating Room. The initial splinting of fractures and insertion of pins, for patients requiring traction, were performed on the ward during the night of admission. Subsequent wound care, and open and closed reductions necessitated daily operative procedures during the week following admission.

Of the twenty-two survivors, the hospital course was marred by one other death caused by a massive pulmonary embolism. He was one of the least injured and was already ambulatory. Death occurred on his 10th post accident day. The remainder of the patients have been progressing most satisfactorily.

The casualties received from the crash were handled in accordance with the prearranged disaster plan of the hospital to the satisfaction of professional personnel in attendance.

Summary

The sound, simple yet flexible plan for disaster was used as a guide by key personnel who functioned within their combined resources. Changes were necessary but it would not be practical or possible to prepare definite and detailed instructions to meet every possible emergency.

It was the general consensus of the professional staff involved in the handling of these casualties that the implementation of the Emergency Operations Plan of this hospital was most effective in providing emergency medical care for the survivors of the plane disaster.

The Advantages of Military Training for Young Men

By

COLONEL WILLIAM H. ARTHUR, MC, *U. S. Army*

This article appeared in the January 1917 issue of *The Military Surgeon,* the former name of our journal. The paper was read before the College of Physicians of Philadelphia (no date given).

Although written almost a half century ago the subject matter is still timely. The physical condition of the American, particularly the young man, was one of concern to the author and undoubtedly to many in the military forces at that time. It is still of concern to many else the President of the United States would not have called a conference recently to meet at Annapolis to consider the same subject.

The author's method of dealing with the problem in an attempt to improve the physical condition by military training is interesting. Universal military training is not a popular subject in the United States although we have almost that in the present Selective Service System of invitation to military service.

What has become of the mass physical education in the schools? We have seen that replaced by the participation of only a few who can excel in some such sports as football, basketball, baseball, or swimming. All the time of the director of physical education is taken up with the development of a few individuals to produce a winning team for the institution rather than the physical development of all the students for the betterment of the country. In the meantime the students become less and less able and willing to engage in any kind of physical exercise because of all of our mechanical devices designed to relieve them of effort.

Is it not time that we think of improving the physical condition of each individual through the years beginning in the first grade of school, yes, even in the preschool years, and carrying this individual through his high school years, and then into college in his interest in his own physical development? We talk about producing scientists, engineers, and all other categories of specialists. That is a truly necessary program. But while we are pursuing that phase let us spend just a little time teaching the individual that physical training will pay dividends, too, in later life.

The author's method of universal military training has not yet been adopted and it is questionable whether the American people will ever permit it. That was only his means of arriving at better physical development. Why not fill in the summer months with government sponsored physical training camps in which we might also develop some civic responsibility attitudes of these young people who are to take over the reins of this government. Would this not be one of the means of attacking juvenile delinquency and also improving the physical condition of our oncoming generations?

EDITOR

THE TITLE of the paper I was asked to read is "The Physical Culture Value of the Preparedness Movement." Even yet the "preparedness movement" is still in the discussion stage, and includes many more or less futile and some very absurd schemes for making ready for national defense. Any effort in this direction is being vigorously opposed by many determined and loquacious orators. Under these conditions the only physical cultural value of the movement is the increase by exercise, of the lung power of the contestants.

If, however, by "preparedness movement" is meant the enforcement of general compulsory military training for our young men, which many men well qualified to judge consider the only efficient means of providing an adequate force of trained men for national defense, I am convinced that in time such a movement would result in a very material physical improvement of the men of our country. Assuming then that this is what was intended, I have given this necessarily short, and I am afraid desultory, paper the title of "Advantages of military training, generally applied, to young men," and these advantages are by no means confined to improvement in physique, important as that is, for there are many other things a young man gets out of military training, which I shall speak of even though they may seem not directly connected with the main subject. The idea of general military training, even of compulsory military service, in this country is not a new one. In a letter written from Monticello, dated July 18, 1813, Thomas Jefferson, ex-president, writing to James Monroe, then Secretary

of State in the cabinet of President Madison, in a reply to a letter from the latter, uses language which shows that both of these distinquished American statesmen foresaw the necessity of, and advocated both universal military training and compulsory military service. Mr. Jefferson says, referring to Monroe's letter:

"Every line of it is replete with wisdom, and proves the necessity of obliging every citizen to be a soldier. This was the case with the Greeks and Romans, and must be that of every free state. We must train and classify the whole of our male citizens and make military instruction a regular part of collegiate education. We can never be safe until this is done."

In the many voluminous articles we read these days on preparedness, the many more or less futile schemes that have been proposed to enable the country to elaborate a military reserve to be called out in case of necessity, the fact that systematic military training for growing young men is an excellent thing in itself, a very valuable part of the education of a boy, seems to have been lost sight of. There can be no doubt that there are many and great advantages to be gained by putting all young men who are not mentally or physically disqualified through a course of military training—advantages I mean to the young men themselves, even if they were never called on to do duty as soldiers in the field, though, of course, it would be of enormous value to the country to have within call a large body of potential soldiers.

Compulsory general military training so dreaded and so denounced, and so often characterized by that most frightful of adjectives "un-American," would be, I believe, an excellent thing for our young men and a very valuable part of their education; would make them better men, physically, mentally, and morally; better citizens, more efficient workmen, business men, and professional men.

We live in a veritable riot of individualism. The average American recognizes no duty to the state, and the average boy is brought up to believe that making money, without working for it, keeping out of jail, and consulting his own comfort and inclinations are the only things worth considering.

Observe a gathering of young Americans, hear them talk, and notice their frequently poor physique, their cigarette-stained fingers, their loose jointed, slack-twisted appearance, their awkward gait; go to a baseball game and sit among the bleachers and note the appearance and manners of the young men and boys you see. You will not come away favorably impressed with young American manhood. And yet it is good material—excellent stuff out of which good men can be made. Inculcate into these young men some sense of duty to the state, some respect for constituted authority, based not on fear of the police but on reason and a realization of its necessity for the common good; feed them properly, give them systematic physical training, teach them discipline, self-control—in short give them a period of military training with all that it implies. Can you doubt that it would make them all-round better men? Can you think of any better method of educating them for useful citizenship? Compare the graduating classes at West Point, Annapolis, or the Virginia Military Institute with the classes at other colleges, where, if there is any military drill and training, it is desultory, not a matter of much interest to the faculty and is gone through more or less perfunctorily. The difference is, I assure you, very manifest.

Athletics as practiced at schools, colleges, and universities does not produce large numbers of symmetrically trained men. The tendency is to select a few, train them intensively in certain athletic specialties (often overtraining them to their permanent physical detriment), while the great mass of students exercise only their lungs in inciting their selected athletes to further efforts.

It may seem irrelevant to discuss advantages other than physical that result from military training, but it may be safely asserted that they are many and that they form

a very valuable port of the education of a citizen. I doubt if there are in any civilized country in the world, as in ours, so many young men who grow up in a spirit of practical lawlessness; who have no idea of obedience, respect for constituted authority, of the most rudimentary conception of what is called discipline. They know or care nothing of the value of team work, the enormously increased efficiency of a mass of trained men working smoothly together to accomplish a definite object, over the same number of men just as willing and anxious to do good work but unaccustomed to working under discipline, without system, each man acting on his own initiative. This can best be taught by a period of military training, and makes the difference between an army and an armed mob.

The value of this kind of training was well illustrated after the earthquake and fire in San Francisco in 1906, and later in the disastrous floods in the middle west, and on many other occasions when the rescue work was non-military, but when small bodies of trained soldiers proved much more effective than much larger bodies of untrained men, no matter how strong and willing the latter might be. In Mexico today (1916) the civilian truck drivers managing motor trucks, and used to dealing with untrained men, express the greatest surprise at and admiration for the efficiency of the trained soldier, when called on to assist them, as compared with civilian help. Will not the average young man who has undergone say a year of this kind of training be a better workman, farmer, lawyer, architect, or doctor, for the experience? I believe he will. He will be a man of better physique for it. He will have learned something of a personal hygiene, developed habits of cleanliness, order, system, punctuality, as well as the habit of instinctively subordinating his own inclinations to the general welfare. He will have led an open air life, have been judiciously exercised, given abundant, simple but properly selected and prepared food, carefully calculated to produce the maximum benefit. The average American family is not judiciously fed, and in this one matter of diet alone the military training will be of value in building up the young man in barracks or camp. The average American kitchen is more notable for wasting of material than for good cooking. There was a vague idea when our troops occupied the Philippines that the natives had by long experience reached the ideal diet for the tropics, and that a diet of rice, fruit, and fish, on which the lower class Filipino largely subsists, was the proper ration for hot climates. The fact was that the natives lived on this diet because it was all they could easily get. When they enlisted as scouts and were given a much more generous diet (to which they took very kindly indeed) combined with exercise, they improved rapidly and very markedly in weight, muscular strength, and endurance, and became physically much more vigorous men than their brothers who did not enlist.

Can there be any doubt that such a well-balanced diet as the soldier's ration affords, combined with outdoor life, active exercise carefully calculated to develop the entire body, and not carried to excess, would be of enormous benefit to the growing young man?

If you could see, as I have in many thousand cases, the round-shouldered, shambling, awkward recruit brace up, and in a few weeks of setting-up exercises becomes a straight, upstanding, alert young soldier, you would, I am sure, agree with me that it was well worth while. The young man has by that time developed a certain degree of self-respect; he has had aroused in him the spirit of emulation and a desire to present as good an appearance as the best of his comrades. Incidentally he has learned what I believe is an excellent lesson for the average young man—not to take himself too seriously: that is, he has acquired a sense of proportion, a realization of the relative value and importance of people and things—a very valuable item in the education of any man.

Undue conceit is not popular and cannot long survive in the barracks, and, if the recruit is inclined to over-estimate his own

qualifications or exaggerate his own importance, he soon reaches his proper level under the not too subtle badinage of the barracks. A little ridicule is a potent factor in bringing young men into line, and it is a healthy influence in the life of the young soldier. I have seen this method applied in a large private school for boys with excellent effect in enforcing discipline.

But we are now principally concerned with the beneficial effect of military training on the physique of young men. To get the best effects we should get very young men, preferably from eighteen to twenty, but preliminary physical training should be begun even earlier, say at fourteen.

The Boy Scout movement has demonstrated very well the excellent effect of even desultory physical training for young boys. The quasi-military features of his organization attracts the boys: the "gang spirit" present in all normal boys is turned into useful channels and utilized as team work. The hikes and camping parties combine a pleasant, interesting occupation with instruction of a very valuable kind and outdoor exercise, and the boys develop physically under conditions that to many of them would be unattainable except for the Boy Scout movement. It is certainly a step in the right direction.

One of the evidences of physical improvement as the result of military training that is difficult to measure or prove by statistics, but which is nevertheless an actual and important result, is the increased resistance to the inroads of infectious diseases that is developed by judicious military training. I can illustrate this by my own experience during the Spanish-American War. I was in command of a hospital ship and was ordered to Santiago, Havana, and Porto Rican ports, and Manila, to bring home the debris of the forces engaged in those countries. The principal morbidity was from typhoid fever, and we carried a great many patients, many of whom died at sea. Those who succumbed were almost invariably volunteers or raw recruits for the Regular Army, while practically all the older soldiers recovered. This was so well recognized by the surgeons on duty in the wards that a bad prognosis was given whenever it was found that the patient had had little or no military training. The unfortunate lads, enlisted only a few weeks, before, when there had been no time for physical training, had much less resistance than the better seasoned soldiers. That, too, explains the very high mortality rate in the volunteer camps in the United States. If these camps had been occupied by trained soldiers, used to taking care of themselves in camp, hardened by physical training, the mortality would certainly have been lower, probably very much lower.

The idea of compulsory general military training seems to be abhorrent to the American and English people, but does it not seem that the state has as much right to demand of its citizens protection from invasion as to call on them to pay taxes to defray the government's expenses? No one is *asked* to pay taxes. He is forced to do it. He is not asked if he wants to, for the answer to that question would be an emphatic "No." But we are again straying from the subject of the physical improvement to be expected from military training. So many things are of interest in this connection that it is difficult to keep to the beaten track.

The subject of the physical development under systematic training of the recruit has been studied by medical officers of the armies of all nations, and the same training that produces such good results in the more mature recruits should do even more for younger men, who are still growing and who have not yet reached a stationary period of physical development. Of course, there must be a firm foundation on which to build, and careful physical examinations must be made to exclude young men who are permanently disabled mentally or physically, but it is surprising to see the rapid improvement under systematic training and good feeding of men classed as "under weight for height," "poorly nourished," "poor muscular development," "anemic," etc., etc., but who show no evidence of serious definite organic disease, or

who are not crippled.

Previous hard manual labor is by no means an equivalent for judicious physical training. It may develop one set of muscles at the expense of others, and it may take time and special gymnastic exercises to eliminate the muscular asymmetries produced by some occupations. Under training the man becomes straighter, chest capacity increases, he gains weight, and his muscles increase in volume and improve in tone. Or, if there is a tendency to obesity, the fat disappears, and the whole physique improves. Rossignol, writing of recruits for the French Army, says: "Young men whom one would consider too weak to endure the hardships incident to military life acquire after six months' military training a general development of the body we should scarcely be bold enough to hope for, and become, under the influence of exercise, strong and robust soldiers." When physical training is properly carried out, men are educated to act with cohesion, rapidly, and accurately, each soldier having his individualism developed and his intelligence sharpened; individual serviceability is increased. A late superintendent of West Point reports that the physical tests and measurements of cadets showed very marked gains at the end of the first year—gains in weight, chest capacity, and muscular measurements, and also in practical tests of strength on the horizontal and parallel bars and broad jump.

Medical Director Beyer, of the Navy, made a series of observations on the cadets at the Naval Academy. The system of records at the Naval Academy made it possible to compare the physical development of the cadets before and after the establishment of systematic physical training. He found, as the result of this training, a very marked increase in lung capacity, and even in the height of the cadets, but, as these boys averaged only 18½ years of age, the increase in height, as they had not all ceased growing naturally, can scarcely be attributed to the training. In other respects, however, the improvement in physique was very marked after the establishment of systematic training.

According to an English medical officer, out of 15,504 British soldiers who completed a course of three months' physical training in 1887 in the military gymnasia of the United Kingdom, the average increase was in weight, 2½ pounds; chest measurement, 1½ inches; forearm, ½ inch; upper arm, ¾ inch; thus accomplishing in three months a very marked physical improvement. And these soldiers were all mature men. Even better results can be expected if the training is given younger men or boys. At one time twelve noncommissioned officers of the British Army, selected from infantry, cavalry, and artillery, were sent to McLaren, an English army surgeon who made a study of physical development. These men ranged from 19 to 29 years of age, 65 to 72 inches in height, and from 128 to 172 pounds in weight. As the result of three months' training he says: "The muscular addictions to arms and shoulders were so great that by the fourth month the men could not wear the tunics that had fitted them easily before, and new clothing had to be issued to them. One of these men gained 4 inches in chest measurement. All increased in weight, the average being 10 pounds gain. One gained 16 pounds in less than four months, and this gain was not in fat, but in muscle increase." McLaren adds: "But the greatest of all changes, which cannot be recorded in figures, was the great improvement in bodily activity, dexterity, mental alertness, and endurance to fatigue, a change a hundred times more impressive than any that can be shown by tape line or weighing chair." This is a fair illustration of what can be accomplished in a very short time by judicious physical training in men averaging 24 years of age. With younger men and longer training it will be, and always has been, even better.

I have in thirty-five years' experience in the Army, seen many thousand young men develop under military training from round-shouldered, untidy, shambling, awkward boys with flabby muscles and pasty complexions, into well-set-up, clean, alert, active young

soldiers, after a few months of setting-up exercises and squad and company drill. Six months of this training can work physical wonders on rather unpromising material. As Col. Woodhull of our own service expresses it: "As a consequence of efficient military hygiene, which involves mental and moral as well as physical training, the average recruit is a far better man at the end of his term of enlistment than he was at the beginning, if there is any discipline worthy of the name in his company. He has learned obedience, promptness, responsibility, order, the value of cooperation, the importance of cleanliness and regular habits, and proper physical exercise, all important elements in the education of any young man."

Another faculty developed by the associations of military life is physical courage, or at least the excellent imitation of it that is engendered by a frame of mind in which a man is much more afraid of his comrades' contempt than of enemy's fire. A spirit of manly resolution, cheerful endurance of physical discomforts and even hardships are certainly most important attributes for any man, and these are part of the unconsciously acquired qualities of a soldier, and develop *pari passu* with his physical improvement under military conditions and training. Another faculty he acquires is promptness in deciding the proper action to take in time of emergency.

I believe, then, that a systematic course of military training throughout the country, widely applied and given practically to all healthy young American men, would result not only in the general physical improvement of the race, but in very valuable character building.

Time will not permit, nor is it necessary to go into minute details of the actual exercises of the recruit, but the results have amply justified the time, study, and effort spent on them, and the military surgeons of all civilized nations agree as to their great value. Military training, generally applied, has made of the Germans most efficient workmen, mechanics, business and professional men, and the Swiss training has resulted in the development of one of the most vigorous and generally efficient races of Europe. I do not believe that, leaving out of consideration entirely its value from a military standpoint, any better method for the physical improvement of the race could be devised than to require a year of military training of all able-bodied adolescent American men, and as a part of their education it would be of inestimable value. The time could not be more profitably spent. It would start them in life with a knowledge of, an instinct for, personal hygiene; physical, mental, and moral training; and would be a means of inculcating habits of life and modes of thought and action that would help to make them strong, self-reliant, and efficient citizens. Even if we were absolutely secure from international complications and should never need a soldier in the uniform of the United States, general military training would do much, I believe, toward the physical and general betterment of the race. As, unfortunately, we are not entirely secure in our isolation, and may be said to live in a fool's paradise, located on the edge of a very active volcano, we would kill two birds with one stone by making our young men more efficient citizens, improving the average physique and general efficiency of the race, at the same time providing a large mass of men trained, to some extent at least, to be of value for national defense.

As the result of military training young men return to their homes with strong and healthy bodies. Statistics show that their children are healthier than those of men who have not had training.

They take with them habits of orderliness, cleanliness, precision, alertness of mind, and concentration of attention. They acquire the habit of discipline. When they return to civil life these habits are fixed parts of their character.

A discharge from the service with character "excellent" is a very valuable recommendation for a man, and will in many places secure him prompt and lucrative employment.

One of our national weaknesses is that we are all too much given to consulting our own individual comfort, interests, and convenience. We are all like Artemus Ward, who was perfectly willing to sacrifice his wife's relations on his country's altar.

Nobody wants his or her son to be taken away from school or from some lucrative occupation and sent into barracks or camp for a year, but he or she is quite indignant that the neighbors do not see their plain duty and send their badly brought up sons to spend a year in military training.

If the American people could only be brought to a realization of the fact that they owe something, a great deal, to their country, that their private wishes and inclinations must give way to the interests of the State, the general welfare, something might be accomplished; but anything an American is called on to do that he doesn't want to do is an invasion of his sacred liberty and arouses at once fierce opposition. How long will this liberty last if no one is prepared to defend it, and what better preparation can be made than to train our young men to be able to do their part when trouble comes, incidentally giving them a most valuable physical, mental, and moral education that will make them sounder, stronger, more efficient citizens, even if, as we all fervently pray, the day of wrath is indefinitely postponed? It is a safe and cheap form of insurance in which the policy holder is also the beneficiary, a cheap and valuable method of education that would result in a very material betterment of the race, at the same time securing a military reserve of incalculable value, if it is ever needed—and what man can say when that may be?

KOBER LECTURE

The Kober Lecture will be presented by a former president of our Association, Rear Admiral Winchell McK. Craig, Professor of Neurosurgery, Mayo Clinic, on March 27 at Gaston Hall, Georgetown University, Washington, D.C., 8 P.M.

Some Aspects of Division Medical Service

By

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INTRODUCTION

THE exact function and objective of the medical service provided in a division is not well understood by many of our doctors in the Army and as might be expected civilian physicians are especially uninformed or misinformed. There are two extremes to the opinions held: one considers the work a species of first aid to which doctors should not be allocated, and the other exaggerates the military element making the medical officer more soldier than physician. Because of the inadequate appreciation of the scope and importance of division medical service, officers responsible for assignment shop around for men to send to Divisions and medical officers themselves tend to look upon such assignments with reluctance.

Service in the division usually is characterized in a way not related to the doctor's concept of a proper practice of medicine. Assignments to divisions are made apologetically and assignment there is often misinterpreted by the officer in "hospital" assignment as an indication of limited medical competence. Correcting this false concept concerning this important medical area is basic to both the problem of achieving efficient division medical service and of improving the doctor's attitude towards Army service in general. It must be better understood that division medical care and the care provided immediately to division rear are among prime justifications for the existence of an Army Medical Service: that it is here where conservation of fighting strength for *immediate* battle use is accomplished and that the doctor who can here achieve maximal manpower conservation needs abilities which in civilian life are associated with the ablest of medical men. The essential functions performed by a good Division Medical Service can be identified and the basic qualifications required in the Division Medical Complement can be clearly defined.

DEFINITIONS

A division should be looked upon as an industrial community of approximately 20,000 men. These men work on engineering projects: lumbering, quarrying, mining, excavating, transportation and the construction of buildings and roads. All the complex machines peculiar to these operations with their many hazards to operator and to others are the tools these men use. In addition to this industrial hazard the 20,000 are formed into teams of professional athletes preparing for, or engaged in deadly contest. The training is a rigorous one. Physical exertion, both in intensity of effort and hours of application, is carried beyond limits seen in civilian athletic life. There are in addition to these the onslaught of climatic changes, rugged terrain, of exposure to abnormally diverse disease—and superimposed on the stress are the loneliness and separation, the strange environment, and the continuous assault on individual emotional stability. The highly trained teams are expensive to produce, difficult to replace, and must be held together at all costs. To keep these worker-athletes efficient in the field, a unitary medical service is needed, carefully trained, functionally organized, and directed with energy and wisdom. Proper selection and training preliminary to assignment should assure the availability of doctors qualified to meet the various medical responsibilities to be encountered. What are these medical responsibilities and what are the total qualifications within the Division Medical Complement which are required?

The major workload of a division medical service is not, as is popularly thought, with battle casualties. The greater responsibilities in division medical service are con-

tinuous and without regard to the status of the division, be it in training, in reserve, or in combat. During the four years 1942-1945, while approximately 592,000 battle injury or wound cases were admitted to hospitals[1] about 11,600,000 were hospitalized for disease and 1,600,000 for non-battle injury. This is a ratio of 22 disease and non-battle injury admissions to one battle injury or wound admission. Only 23 percent of all hospital admissions in the European theater were for battle injuries or wounds and in other theaters they were 11 percent or less. In the several overseas theaters 61 to 90 percent of admissions to hospital were for disease alone.[2] To further indicate the preponderant responsibility here it must be remembered that all these hospitalized men were initially seen by the dispensary or small unit surgeon. It is a usual experience for about 30 men to be seen for each one hospitalized. The efficiency with which this immense general practice workload is handled determines the number eventually hospitalized, and this efficiency is dependent on the ability of the men assigned the duty.

Medical officers of the division, besides this general practice, have responsibilities in these other fields of medicine: preventive medicine, medical liaison and leadership, and short-term hospitalization. Preventive medicine responsibilities require that the doctor maintain a continuous survey of all division training and work operations. Water production and distribution, food storage, distribution and handling, contact with disease-carrying animals and humans are the problems with which he is concerned. He determines optimal neuromuscular competence of men in certain jobs. Changing climatic conditions require that he assess ever new dangers arising out of extremes of heat and cold. He must expect stress of training and combat to lead to disabling emotional reactions and expect minor physical defects to be exaggerated by men at each step in the division's move toward combat. He will see frank neurosis develop under his direct observations. These constantly impending medical problems must be anticipated, their genesis understood and preventive measures devised and recommended.

Surgeons, at all levels in the division, have important liaison responsibilities. There are contacts to be made with commanders whose troops are served, with surgeons to the front, rear and flanks, and with commanders of medical units where his men are given consultation service or are hospitalized. A Surgeon's relationship to his immediate commanding officer is usually one of mutual respect and understanding in their pursuit of a common objective—combat efficiency. In intimate combination in the liaison responsibilities are medical leadership ones.

Leadership is the application of useful techniques in directing the efforts of people. Development of a medical service with high esprit and sound motivation requires leaders who understand and use well-formulated management techniques.[3] Key officers especially must use wisdom in their inter-personal relations, understanding human behavior and the methods of leading and directing men toward team objectives. The doctor has leadership roles in relation to both medical and line and to officers and soldiers alike and can make an outstanding contribution in assuming his leadership role.

Finally there are short-term hospitalization responsibilities. During stabilized combat periods or when a division is in reserve, battalion aid stations, regimental collecting stations and medical battalion clearing companies can provide bed treatment to an aggregate of 100 to 200 short-term patients within the division. Effective use of these facilities through careful evaluation of the sick, continuous reevaluation and return to duty at the earliest possible moment—these are the marks of a flexible manpower saving division medical service.

Medical Duties

There is one medical duty which is of paramount importance in considering the division clinical workload—that is the evalu-

ation of presenting cases. Scrupulous diagnosis and prognosis are keys to retention of the treatable or rapid evacuation of others. Daily or more frequent appraisal of those under treatment is necessary if earliest return to duty is to be assured. This frequent evaluation is equally important to assure movement of the soldier to the rear the moment this action is clearly indicated. It is well to consider the fact that medical service is freely available to the soldier, and hospital facilities if needed are theoretically unlimited. If the physician at the small unit or dispensary level is not well prepared and intelligently led and supervised, he has a ready means of reducing his workload—conceivably at times this is an unconscious retaliatory act—he can refer his problems to the rear. The result where this occurs is increased bed requirements in support areas and overloaded or excessive facilities in the rearward chain. The objective of maximal manpower retention must be stressed and senior medical officers must assure a medical service which acts as a unit. There must be critical evaluation of performance with the group working conscientiously toward a manpower-saving objective.

The cases which will result from the scrupulous evaluation outlined above will uncover the usual incidence of acute infectious disease and acute general surgical conditions to be diagnosed and evacuated. Beyond this the division clinical workload can be divided roughly into orthopedic cases, ear, nose and throat cases, dermatology and psychiatry. Every physician in the Army should be competent to evaluate and dispose of common problems in these specialty fields. Especially important is orthopedics, for injuries or complaints referable to knees, back and other joints predominate among soldiers. A senior Army orthopedist has said, "Few men can properly examine a back. Possession of this ability by the medical officers at small unit or dispensary, could materially reduce the immense load falling on clinics and wards of supporting hospitals."[4] McBurney has studied this problem and reaches similar conclusions.[5] Next in importance are the common ear, nose and throat complaints and the commoner dermatoses. These are important in the unit surgeon's workload and practical ability in these fields is important in preventing unnecessary hospitalization.

The psychiatric orientation of the incoming medical officer should prepare him to recognize the meaning of behavioral patterns he will encounter. His training here should be as complete and as practical as possible. Brill has commented on the character of the problem here, "Because hospitalization per se aggravates the disability in many psychoneurotics (including many with conditions which are mistakenly labeled as organic disease) the system of medical treatment in the Army . . . should be radically revised in the direction of out-patient treatment."[6] A companion practice necessary to its success is this—where doctors are trained in the "specialties" in general practice and encouraged to exercise their abilities fully, intelligent supervision and active consultant participation is necessary. Where the doctor evaluates and treats in place, to a maximum, he must be provided with realistic limits for guidance, adequate equipment, and assistance in developing effective treatment methods. Consultant visits to the division can contribute appreciably to success in our primary medical mission of manpower conservation. Responsible higher level medical officers, in turn, cannot assume that division medical service is adequate because the required number of doctors are assigned. Consistent differences in the evacuation rate of divisions under the same general conditions should suggest the need to scrutinize organization and staffing and to examine the attitudes dominating the medical complement. Presented in Tables 1 and 2 are suggested items and computation which can provide a numerical index of certain aspects of division medical service. Weekly tabulations of this information on all the divisions in the Corps or Army Area and their comparative study can provide an indication for

TABLE 1. COMPARATIVE DATA, DIVISIONS X AND Y

Week of ——— to ———

	Division X	*Division Y*
Total Average Daily Admissions to Clearing Company (Disease and NBI)	25.8	12.2
Average Daily Evacuations to Rear	18.1	4.7
Weekly Evacuation Rate Per 1000 Per Annum (Admission Rate to Hospitals)	415	112
Evacuation Rate Per 1000 Per Annum 1 Jan. to present	402	150
Average Daily Returned to Duty	5.8	6.7
Average Daily Remaining	24.8	20.0
Percent of Average Daily Total Admissions Returned to Duty	22.4	54.9

Table 1 and Table 2 tabulate information from 3 U. S. divisions under similar conditions on the line in Korea in the Spring of 1953. When Division X is compared with Divisions Y and Z it is seen that losses to the rear in Division X "Weekly Evacuation Rate per 1000 per Annum" were several times as great as for either of the other divisions. This finding was consistent over a succession of reporting periods. It is suggested that this difference was largely due to a difference in the quality of leadership and medical talent available in the three divisions and a difference in the degree of acceptance of the total medical responsibilities outlined here.

inquiry into the extent to which individual division surgeons accept all areas of their medical responsibility.

DIVISION MEDICAL JOBS

Important medical jobs exist at each level in the division and the battalion surgeon's job properly interpreted is as important in contributing to our medical mission as any in the Army Medical Service. While the division trains, he is, among other things, general practitioner to approximately 1,000 men. His efforts during the stress-laden transition period of the recruit in his progress from citizen to soldier and in his later introduction to combat are most necessary both to the individual and to unit development and to continuing unit integrity. His careful evaluation of the physical and psychiatric symptoms paraded before him provides positive resistance to forces which urge men toward the rear. Failure to recognize and intelligently meet these forces leads to what can be termed subsidized straggling. As stated by one regimental surgeon, "You can tell what is happening in a unit by graphing the number appearing on sick call. Each new situation, movement, alert or expected action brings its assault on the unit surgeon. There are exaggerations of old ills and a presentation of newly discovered ones."[7] Another unit surgeon states, "The appearance of a new surgeon in a unit usually brings out all the old guard of poorly motivated men. They probe and test and attempt to get under the doctor's guard. Failure in this effort is followed by new respect for the medical officer."[8] The surgeon also advises and recommends on sanitary and hygienic practices, and these important professional efforts, used by command, assure healthy troops. His medicolegal opinions often assist the commander in making decisions of far reaching import for unit morale. The battalion surgeon must

TABLE 2. COMPARATIVE DATA, DIVISIONS X AND Z

Week of ——— to ———

	Division X	*Division Z*
Total Average Daily Admissions to Clearing Company (Disease and NBI)	35.8	15.6
Average Daily Evacuations to Rear	24.0	10.7
Weekly Evacuation Rate Per 1000 Per Annum (Admission Rate to Hospitals)	441	203
Evacuation Rate Per 1000 Per Annum 1 Jan. to present	387	164
Average Daily Returned to Duty	12.2	5.7
Average Daily Remaining	32.8	38.1
Percent of Average Daily Total Admissions Returned to Duty	33.7	36.5

have a vital interest in his job. One trained internist serving as a battalion surgeon said, "I drew an old microscope and trained my technicians and I do as good a medical practice here as in my own office—and the work has presented equally interesting clinical problems."[9] Another officer who has had advanced training said, "I saw every man brought to the aid station around the clock. I always wore my shirt with the insignia clearly displayed for I found the injured man's response to knowledge of the physician's presence was immediate. His fears were allayed and it was evident that the arrival of a doctor to help him at this critical time was immensely important."[10] At regimental level, in addition to duties similar to those of the battalion surgeon, the surgeon oversees and advises the subordinate unit surgeons. He provides at the regimental collecting station, slightly better short-term hospitalization and treatment facilities. He has important command and staff responsibilities as senior professional member of the regimental medical team, and his position in this leadership role is strengthened if he has had training in one of the major clinical specialties. Additional surgical or medical training places him in a position to acceptably review and advise on the medical decisions of his juniors.

The commander of the Clearing Company of the Medical Battalion organizes and operates the major short-term hospitalization facility in the Division and provides a final level of consultation before recourse is had to supporting medical units. A clearing company staffed with competent men can provide respected diagnostic determinations. Here should be located men with two or more years of surgical and internal medical specialty training. In thus providing dependable medical opinion, controversy is avoided and stability within a unified medical group is achieved. The resulting group awareness of medical competence contributes to a cooperative functioning and provides an instrument of important group identification. The clearing station, where relative location stability exists, provides hospitalization for up to 120 short-term patients. Proper use of these facilities reduces the work-load on rear medical installations and on the often limited ambulance facilities. Scrupulous evaluation of admissions and the exercise of clinical judgment aimed at maximum case retention within the division can materially reduce evacuations. The holding policy must vary with the tactical situation but, in general, medical installations at division level must care for all patients within their capabilities and after careful screening, evacuate only those which require more extensive care.

The Division Surgeons

The division surgeon's ability and personality largely determine the quality of division medical service. One of his important roles is that of management. His ability in this field is paramount in achieving a smoothly operating, efficient medical service. He establishes its spirit and finds in this effort a mutual objective with the medical unit commanders. He inspires the physician complement with an appreciation of the importance of each officer's job, assigns officer personnel according to their special abilities and takes a personal interest in their problems. He imparts firm policy, gives constructive guidance, and assures the communication of his policies and ideas. Division medical meetings are dedicated to an attack on common difficulties and are used to disseminate information and instruction and to critically examine performance. Attitudes appropriate to the military situation are aired and approaches to recurrent problems devised. The surgeon establishes the proper professional relationships between surgeons of the different levels and makes clearly evident the hierarchy of medical opinion operating within the division. He achieves for his officers the proper place within the division and works for an equally important professional rapport with commanders and key medical officers in supporting hospitals and higher medical echelons. These and other efforts of the surgeon determine the excellence and unity of purpose of the division

medical contingent. To do these things he must be trained in a medical field, recognized and respected by the men he directs.

A division surgeon, trained in preventive medicine, says, "The work of the division surgeon in about half its aspects falls in the field of preventive medicine."[11] For this reason and because alone of the specialties of medicine the preventive medicine man is trained in management and evaluation techniques, I believe that the division surgeon should be trained in preventive medicine. The preventive medicine section of his office is manned by a young, minimally trained, preventive medicine officer working directly under him. This section provides a broadly comprehensive preventive medicine program for the division, and guidance to unit surgeons in meeting their preventive medicine problems. But unless the surgeon himself is well trained, preferably in preventive medicine with its accent on management and performance evaluation, division medical service can fail to achieve highest excellence.

Specialists in the Division

Trained psychiatrists have been assigned to divisions since 1943. Their value in retaining manpower within the division has been well demonstrated. Particularly noteworthy have been the studies of Glass and Edwards and Peterson relating to the Korean conflict.[12,13] The recent study of Peterson, using the stable evacuation rate for psychoses as a constant, demonstrates how evacuation rates for neuroses can fall from several for each psychotic to less than one for one, when trained men, guided by a clear manpower saving mission, meet the problem at its source—in the division.[14] More manpower savings can be accomplished if surgical and medical specialists are provided in the division, permitting evaluation of conditions falling within their specialties at a place where it can do the best manpower saving job—right in the division area.

Summary

Division medical service is discussed in relation to the qualifications of its assigned medical staff and higher clinical qualifications for the division complement are recommended.

An effort is made to define division medical responsibilities and the nature of the clinical workload and to correlate these with the medical qualifications required.

Battle casualty care is considered a function periodically superimposed on a continuous major workload and is not discussed.

A tabulation is suggested for comparatively examining certain features of division medical operations.

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The Place of the Drug Manufacturer in the Progress of Military Medicine*

By
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LIKE most bridegrooms at most weddings, I wish I could think of a good reason for being here today. Certainly I'm no expert on military medicine, and as for expanding horizons, well I don't know. I seem to have enough trouble trying to keep up with the past let alone the future. Nor have I been elected the spokesman for the drug industry or any other group or body for that matter. I'm afraid, gentlemen, all I'm representing here today is just me. So now having thoroughly disqualified myself, I will proceed to tell you all about it.

Only a few decades ago the prime function of the industry which I have explained I do not represent was the manufacture of chemicals, not medicines, but chemicals. These chemicals were then compounded into what it was hoped would be useful medicines by the druggist working with and under the direction of the physician. But all that has been changed now. Now the drug manufacturer makes medicines all ready to be prescribed by the doctor and taken by the patient. I'm sure that thirty or forty years ago no one could have foreseen the consequences of this evolution of the drug industry.

As long as manufacturers were content to make raw chemicals for compounding, there was little incentive to make new ones since there was no demand for them. Therefore, research in therapeutics was centered in medical schools, research institutions, and frequently individual investigators working independently.

People did research because they enjoyed doing it, because they had the urge to benefit suffering mankind, or for some other worthwhile or lofty reason. My point is that nobody did research because he wanted to make money. When one considers that self-interest is probably the most powerful motivating force of ordinary human beings, it is easy to understand why in the past medical research progressed slowly, at least slowly by modern standards. But the advances that were made had the effect of producing more powerful and more complex drugs requiring for their manufacture the skilled services of highly specialized and trained personnel.

When doses of potent and highly purified drugs began to range downward into milligrams and fractions of milligrams instead of drams and ounces, the drug industry was forced to take over many of the functions of the corner drugstore particularly the compounding of prescriptions because the great manufacturer could afford expensively equipped laboratories and highly trained personnel which were beyond the reach of the retail druggist. When finished medicines began to be made on a large scale by commercial organizations, there came into being a powerful incentive to make better and better medicines so that a firm could outsell its rivals and make more money. Thus, for the first time in addition to all the other laudable motives for engaging in medical research was added a new motive, base and selfish if you like, but a compelling motive of fabulous power, the profit motive.

You know I'm glad I'm not representing anybody here today but myself because I can say what I think. I can call them as I see them and walk away tough.

Twenty-five years ago the Index Medicus required about 600 pages to list the titles of

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medical articles appearing in one year. Now it needs nearly 4,000 pages. Fifty years ago Chemical Extracts printed 7,500 abstracts, last year 80,000.

Why is it that in this twentieth century the idea of scientific research in all fields and especially medicine suddenly caught fire? Of course, there were great discoveries in the past, but for the most part they resulted from the efforts of great investigators working alone. Too often it took years or even decades for the practicing physician to apply the benefits of new discoveries to his patients in everyday practice. Too often the voices of the leaders in our profession were lonely voices crying in a vast wilderness of ignorance. But in our time huge numbers of individuals have seen the vision of research and what is almost as important, they have been brought together to work not as individuals but as members of teams. When chemists, biologists, pharmacologists, and clinicians join together and work toward a single goal, then things begin to hum. This tendency towards group research rather than individual research is to my mind one of the most significant developments of the twentieth century. Let us take an example. In 1918 single authors wrote 45 per cent of published chemical articles. In 1950, 86 per cent of such articles were written by teams of investigators.

More progress in the conquest of disease was made in the last 50 years than was accomplished in the entire thousand centuries of man's existence on this earth. Why? There are many reasons. But certainly not the least is that now for the first time medical research is good business and big business.

What is the place of the drug manufacturer in the progress of military medicine? We have two roles to play. First we are your armorers. It is our job to make the weapons for you to use in your war, your war to prevent suffering, disability, and death on and off the battlefield. Our second role is to forge new and more powerful weapons for you to use.

On December 7, 1941, a shot was fired and heard around the world. On March 27, 1943, another shot was heard around the world. This second was a penicillin shot. For on that day Florey and Chain announced to the world the results of the first penicillin injections. A few months later I made a trip to Washington. I was a very proud little man indeed. In the first place I had appointments with high officials in the offices of the Surgeons General of both the Army and the Navy. In the second place in my suitcase were eighteen little vials of whitish powder. Each vial contained 20,000 precious units of penicillin, the first produced by my company. My object in visiting Washington was to present half of these to the Army and half to the Navy. Certainly eighteen doses of penicillin was too much to concentrate on just one service. And you know, gentlemen, my contribution was not only gratefully but even respectfully received. But in less than a year's time had my eighteen vials been dropped on the floor of somebody's office, I doubt whether anyone would have thought it worthwhile to stoop over and pick them up, for in that short time penicillin was pouring out of the factories of American drug companies by the billions and trillions of units.

Industry's record in producing fabulous amounts of penicillin in jig time was held on all sides as one of the outstanding production achievements of World War II. But was this record of production made possible under the stimulus of war and with the expediting help of the Government? I don't know, but I do know that when the next great antibiotic, streptomycin, came along, the war was over and there were no Government expediters and no priorities. But industry's record in turning out streptomycin was even better. It took five years to produce adequate quantities of penicillin for all needs, but only three years for streptomycin.

When World War II began Atabrine tablets were being produced in this country at the rate of about a million a year. When the demands of war came, industry thought

nothing of stepping up production of this highly complex synthetic a thousand-fold. During the war years nearly seven billion of the little yellow tablets were produced, enough to girdle the earth three times if laid side by side. And not a single tablet was chemically defective, impure, or contaminated in any way which impaired its efficacy or safety.

So much for our role as armorers to military medicine. Gentlemen, you need have no fears about supplies of drugs under any circumstances which permit us to function. You have behind you a powerful and resourceful industry able to perform miracles of production whenever called upon to do so. You will have what you want for your war when you want it, and that's that.

But what about our second task? Our self-appointed job of giving you newer more powerful drugs than you ask for.

Not very many years ago the chief function of the military surgeon was to extract rifle balls and to treat gunshot and other wounds. Maybe that is why the term "surgeon" came to be applied to military doctors. A hundred years ago your chief job was surgery, but changing methods and concepts of war and the care of military personnel has caused military medicine to encompass almost the whole of medical science.

What is a military surgeon? From what I have seen and been told, a military surgeon is a surgeon, an internist, an obstetrician, a gynecologist, a psychiatrist, an ophthalmologist, a roentgenologist, an epidemiologist, in fact your duties and responsibilities have been so enormously expanded that now they encompass practically every discipline in modern medicine. In the largest sense every advance in the whole realm of medical science extends the horizons of military medicine.

Where will the exciting new discoveries which I promise you will revolutionize the thinking of military surgeons be made? They will be made first of all in the research units of the Armed Forces themselves, in other words by you gentlemen. They will be made by the staffs of universities and research institutions. But increasingly they will be made in the laboratories of the drug industry, for in these organizations although not exclusively of course are the facilities and the teams of trained scientists available to do the job.

A recent survey showed that the large drug firms spent an average of 21 per cent of their profits on research with some companies going as high as 34 per cent. What is this in terms of dollars? From one million to nearly nine million per company per year. Multiply that by the number of companies and you get a total that will buy a lot of research facilities and a lot of research brains.

Penicillin was discovered by Sir Alexander Fleming and streptomycin by Selma Waksman. What of the other great antibiotics that you use every day? Aureomycin, Terramycin, Tetracycline, Erythromycin. They were all the products of research by the drug industry. Of the seventeen antibiotics available today, all but two or three came from the laboratories of American drug firms. Did we just follow in the footsteps of Fleming, duBos, and Waksman? Was the contribution of the industry "me too" research? Maybe we did follow in the footsteps of others, but it was good, sound, productive research conducted on a scale hither-to unknown in medical science. One firm alone screened a million soil cultures to find one useful antibiotic. "Me too" research is useful, and it can only be done by the drug industry. Five thousand compounds were screened in tracking down isoniazid. This is patient, plodding, perhaps even unimaginative research, but it is highly productive, and the drug industry almost has a corner on it.

But my industry is equipped to do more than just follow the lead of others. In our laboratories our scientists can and do carry out more basic investigations and produce fundamentally new discoveries. The discovery of isoniazid is a fine example. A

group of scientists in a drug company turned a corner and in doing so discovered a drug which combined with streptomycin is rapidly removing tuberculosis from the list of urgent public health problems. Actually the first effective chemotherapeutic agent, sulfanilamide, which paved the way for the advent of the antibiotics was discovered in the laboratory of a drug firm. In fact all of the sulfa drugs with one or two minor exceptions resulted from drug company research.

All of the synthetic antimalarials, Atabrine, Cloroquine, Plaquenil, Camoquine, and Daraprim, with the single exception, Primaquine, were discovered and developed by industry. In fact the sweep of these synthetic antimalarials has been so complete that the only natural antimalarial, the time honored quinine, is now better employed as an ingredient in another kind of medicine, the delightful gin and tonic.

The list of medical discoveries which the laboratories of industry can justly claim is a long and honored one: the first quaternary ammonium antiseptic Zephiran; the intravenous anesthetic agents Pentothal, Surital, and Evipal; the antihistamine drugs; the pressor agents Neo-Synephrine, Levophed, and others; the analgesics Demerol and Dolophine; the schistosomacide Fuadin; the surgical antiseptic hexachlorophene; the urographic agents Miokon, Urokon, Neoiopax, Diodrast, and Hypaque; the cholecystographic agents Telepaque, Cholegrafin, Priodax, Teridax; ACTH, and cortisone (these last two and some of the others with the very important cooperation of outside scientists); the anemia intrinsic factor; Dramamine for motion sickness; the central nervous stimulant Benzedrine; and now tranquilizing drugs. This is not the complete list by any means. I have mentioned only a few examples. Anyone who wishes to do so could make up a list several times as long without repeating himself.

Does this vast research program which resulted in these discoveries have a direction? Only in the sense that the winds have a direction. Medical research in the drug industry is going in all directions at once, so it isn't possible for me or any one else to chart its future course. I can only give you a few examples of what I believe the future holds.

In the field of analgesics new agents are now under study hundreds of times more potent than morphine. Strenuous efforts are being made to separate the addictive properties from the analgesic properties of pain relieving drugs. I for one believe that it won't be long before you gentlemen will have powerful analgesics which are not narcotics, in the addictive sense, and with which you will be able to control the pain of suffering patients for prolonged periods without fear of making narcotic addicts of them.

Powerful new anabolic steroids are being tested which may speed wound healing and shorten convalescence from debilitating diseases to an unheard of degree. New, safer, more easily controllable anesthetics, more convenient to administer under field conditions are in the offing.

The bacterial diseases are all but conquered, but the viruses have hardly been scratched (if one can scratch a virus). I think I can safely predict that they are next on the list. If you could see as I have seen the intensity of the search for virusidal agents being carried on in a number of industrial laboratories and the progress being made, you would be as confident as I am that the first major break-through is near at hand. When that lucky day comes, whether it be next week or next year, we will have the glorious story of the sulfonamides and the antibiotics all over again.

Atherosclerosis and even arteriosclerosis have been produced in laboratory animals. What does this mean? It means we are on our way to solve some of the problems of the aged and perhaps to a better understanding of the aging process itself. The concept is growing that old age is not an inevitable condition but a disease capable of prevention and treatment as are other dis-

eases. (Curiously enough the humble ameba has been trying to tell us this fact ever since the invention of the microscope.)

As I speak thousands of new steroid compounds are under intensive research in dozens of commercial laboratories. What effects these mysterious chemicals will have on our minds, bodies, and personalities, I do not dare guess.

I can not close my remarks without reference to the newest word in medical research, that is, psychopharmacology. The most recent newcomers in therapeutics, the tranquilizers and ataractic drugs, are only babies, but they are lusty babies. Already we have drugs that can stimulate or depress at various cerebral levels, and there are a few drugs in research which are capable of stimulating or depressing individual brain centers. This is only the beginning. We have drugs that can so affect the highest centers of the brain that we can not only produce hallucinations, but we can produce pleasant or unpleasant hallucinations at will. Already we can cause overt and anti-social behavior in animals with drugs, and we can antagonize these behavior patterns with other drugs. The horizons in psychopharmacology are limitless. I dare say that it won't be long before we will be able to make people happy or unhappy, wise or foolish, sad or glad, aggressive or tractable, brave or cowardly, witty or dull, sane or nutty, just by giving them a pill, although it may take an intravenous injection to convert an Eisenhower supporter into a Democrat.

I said at the beginning of this talk that as much progress has been made in medical research in the last fifty years as has been made in all man's previous sojourn on this earth. I have no hesitation in predicting that that record will be matched in the next five or ten years, and, gentlemen, you may be sure that the drug industry will play an important part in bringing about this golden age of medicine.

In my opinion the theme of your meeting, that is, the *Expanding Horizons of Military Medicine*, is far too conservative. I think it ought to be the *exploding* horizons of military medicine.

1450 Broadway
New York 18, N.Y.

FIGHT POLIO
VACCINATE NOW

The Meaning of Illness

By

LIEUTENANT DENNIE L. BRIGGS, MSC, *U. S. Navy*

SOMEONE has said, ". . . a character reveals itself especially in illness. . . ."[1] In utilizing modern techniques in treating hospitalized patients we sometimes neglect to see the human side of being a patient and all the changes from a normal way of living that status involves. As a patient becomes "disagreeable" or hard to manage many fail to understand why he feels as he does. If we believe that all behavior is meaningful, even though sometimes offensive, it behooves us to examine not only the behavior of the patient but the atmosphere in which he is being treated. Our own attitudes are not immune from scrutiny; they play an extremely important part in the treatment process. Halley has recently pointed out some of the areas which are often anxiety-laden and has suggested some practical ways in which these may be minimized in treating the dental patient.[2] Similar approaches are applicable to all patients. One of our hospital corpsman, Kenneth Purdy, has shown how the staff may further an atmosphere conducive to rapid recovery.[3,4] We have outlined an educational program oriented toward interpersonal relations designed to help the nursing staff become aware of the importance of the patients emotional recovery.[5,6,7,8,9] If there is any area in modern medicine that needs further research and development, we believe it lies within understanding more of the effects of these attitudes and anxieties upon bodily processes.

Here, we would like to present some of the typical feelings which patients experience when they become ill and show how an awareness of their feelings can be utilized in nursing care. We would like to see some of the implications of being ill from the standpoint of the patient and the staff, whether doctor, nurse, corpsman, administrator, ward attendant or even visitors.[11,12]

ILLNESS IS A THREAT

Many patients experience a sense of apprehension and sometimes danger when they become ill and more so when it is necessary to be hospitalized. It is well known that many persons will go to great lengths and run unnecessary risks in order to avoid seeking medical attention. A Marine Sergeant slipped and fell in a shower bath and was unconscious for a short time. He received a 4 inch scalp laceration which was bleeding profusely when he regained consciousness. Rather than seek medical attention, he went to bed and awakened early the next morning following extensive bleeding during his sleep. He still hesitated and only late in the day did a buddy persuade him to have the wound dressed. He recounted his fears of going to the sick bay and how he would be treated once there, and how his buddies would regard the injury.

Most persons do not know what to expect when they become ill and many have a tendency consciously, or more often beyond their own awareness, to fear the worst when they are uncertain as to what may happen to them. Often times we make the apprehension assume reality in our dealings with patients. For instance, we demand that the patient be-

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Given as part of a series of discussions in the in-service educational program at this hospital for non-rated hospital corpsman. The author would like to acknowledge the encouragement of Rear Admiral Bruce E. Bradley, MC, USN, who first suggested that efforts be expended to teaching corpsmen more of the importance of interpersonal relations in the hospital, and the untiring efforts of CDR Myrtle Warner, NC, USN, LCDR Mary A. Martin, NC, USN, LCDR Dorothy E. Jones, NC, USN and Joe E. Goble, HM2, USN in the education of the nursing staff.

come passively helpless and dependent upon us in order to get well. Dr. Wilmer has expressed it:

"If I were a patient . . .
Totally dependent upon others . . .
Struck down and bewildered . . .
Who would open the door?
Could I give up everything and not feel threatened?
Could I lie at rest?
Could I put aside all my armor of defense
And would I be served even then?"[13]

The "good patient" frequently is the one who obeys us without question, submits to whatever is asked of him and shows little initiative. When his questions are left unanswered or when he is not told the truth, the apprehension becomes all the greater, for under these stresses and those of his illness, even facts tend to take on new and unrealistic shapes. Where there are blank spaces, he fills them in with all sorts of misconceptions which are the only reality he knows.

Acceptance of Illness

Hospitalization involves many new adjustments for the patient to make. Besides coping with his illness, he must try to understand what is expected of him in this new environment, which is designed for the convenience of the staff—rarely does it consider the patient. We often evaluate the hospital ward as to its degree of "quietness" as we have become so accustomed to having the patient in a totally inactive state. Fortunately, these and other practices are gradually changing as we learn more about disease processes.

During the course of a more serious illness or injury—especially those that may be life threatening, the patient goes through important physiological phases in which there are metabolic and tissue changes. He likewise has emotional reactions which closely reflect the organic state. Being aware of emotional manifestations of physical illness gives the nursing staff an extra aid which they may profitably use in treatment. These observations provide an opportunity to relate to the patient and may actually facilitate the recovery process. One evening a young corpsman who had been out of Hospital Corps School but a short time, was on duty on an orthopedics ward. A patient who had had surgery two days previously was on heavy sedation and apparently in a great deal of pain. Sedatives were to be administered every four hours. The patient was awakening every three hours and demanding sedation immediately. The corpsman was concerned, as the patient was abusive, hard to manage and expounding all sorts of verbal threats to the corpsman. He did not feel that the patient should be so dependent on the drugs; he could not accept the idea of being a patient while in this state. It was pointed out that perhaps the patient was really frightened, as the operation had been a serious one and could have led to all sorts of complications. The corpsman spent the remainder of the night talking to the patient whenever he awoke, finding out about his ship, his home town and his interests. The next morning at sick call, the patient asked the doctor if he could be taken off sedation, as he felt it might be habit forming and didn't want to run the risk of forming such an attachment. This relationship was an extremely important one in the patient's total rehabilitation, and perhaps marked the beginning of his recovery.

In medicine awareness of the relation of emotional states with physiological states cannot be over-emphasized. Recently a patient with fractures of the right femur was admitted to a large hospital. After the bone had begun to knit there was excruciating pain in the knee cap. After all possibilities had been exhausted and numerous surgical explorations had been performed, a femoral nerve block was being considered. A physician inadvertantly remarked to a colleague on the staff, who was also a psychiatrist, that he could not account for the inability of the patient to respond. The psychiatrist asked to see the patient and after one interview suggested they try thorazine (one of the new tranquilizing drugs used in treatment of mental illness); the pain was removed in a few minutes and had not returned at the

time the patient was ready to leave the hospital. He was seen again by the psychiatrist and the emotional implications of the pain became more apparent—it was actually a protective device to keep the patient from becoming aware of the implications of his injury—he was a champion bronco buster.

Emotional Phases of Recovery

Hamburg, in working with severely burned patients has pointed out three important phases in learning to cope with illness. They are applicable to other types of illness as well:[10] (1) "Will I survive?", and then presuming he lives through the initial phases of his illness, (2) "How long will I have to suffer like this?" As he begins to recover and thinks about leaving the hospital, the patient asks, (3) "Will there be any complications," and "Will I ever have to suffer like this again?" Where the illness may become serious or critical, the patient's life may rest on how he deals with threat. We wonder sometimes how many patients have died because of fright itself?

Illness and Social Values

Often people who treat and care for the sick fail to realize that different kinds of illness are seen differently by the public. How the illness was acquired, its nature, the part of the body afflicted and the kind of treatment to be applied have different meanings to people. We place values on the illness and type of treatment—making some more acceptable than others. Having one's teeth corrected with a brace is not unusual, yet it does evoke a certain amount of friendly teasing. If a person receives a facial disfigurement in an automobile accident it is "worse" than having one's teeth in a brace, yet not quite so bad as having cancer, polio or tuberculosis. And receiving a facial wound in combat is not as bad as one received in an automobile accident. A venereal disease, because of the widespread social disapproval is perhaps even worse and a mental disorder is feared more than any other. The interesting paradox is that no patient ever died from an emotional disorder but patients die daily from other illnesses.

A young staff sergeant was admitted to the hospital following severe burns received from a gasoline explosion in Korea. He was given emergency treatment aboard a hospital ship and sent via Air Evacuation after spending a night at Tripler Army Hospital and at Travis Air Force Hospital. Post injury care consisted of sprayed plastic dressings and heavy sedation. He was fed by stomach tubes and intravenous injections and received numerous transfusions. For a long period of time he was occasionally in a semi-conscious state, under almost overwhelming pain. Nevertheless at times he was partially aware of some of the happenings around him. He was hospitalized for nearly two years undergoing plastic surgery, receiving among other procedures countless skin grafts. One ear was lost, part of the other ear and he had noticeable scars on his face. The threat was so great that two years later he had repressed all his early feeling about being injured and hospitalized.

His fears of how people would react to his injury were so intense, that when friends would drop by while he was home on liberty caused him to hide in a bedroom as he was unable to muster up courage to "face" people he had formerly known. He would wear his uniform at all times, for he found then that rarely did people ask about his scarring as they considered it a part of his job; without the uniform he felt constant social pressures. When it became time for his discharge from the service, the sergeant became noticeably apprehensive and upset, as now he felt he was "marked for life" and that the public would treat him as a curiosity and not as a human being. Surgery was over, the tissue had healed, but the emotional injury was left untreated.

Understanding, kindness, and sincerity—these, too, are powerful treatment techniques—older than the science of medicine itself, yet waiting for discovery by each individual who works with patients.

As theory and treatment in medicine ad-

vance, superstition slowly gives way to knowledge and many of our irrational fears are alleviated. Where once certain disease processes were not understood, they were feared and caused great alarm when not controlled. Alarm and superstition have sometimes led to needless suffering and loss of life through treatment procedures, but continual progress in medical knowledge together with understanding of the meaning of illness and injury is leading to greater perfection in therapeutic endeavors. We continually ask ourselves:

> "Can I myself really give
> Have I really given
> Can you give
> And have you really given?"[13]

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AERO MEDICAL ASSOCIATION MEETING

The 28th Annual Meeting of the Aero Medical Association will be held at the Shirley Savoy Hotel, Denver, Colorado, May 6-8, 1957.

Experiences in Air Evacuation of Severely Burned Patients*

By

LT. COL. ROBERT D. PILLSBURY,† MC, *U. S. Army;* MAJOR BRUCE G. MACMILLAN,‡ MC, *U. S. Army; and* LT. COL. CURTIS P. ARTZ,§ MC, *U. S. Army*

RAPID and smooth evacuation of the wounded soldier has long been the ideal sought by military surgeons. Delay in treatment following wounding, and trauma associated with wartime transportation have taken a severe toll in life and limb throughout the ages.

The concept of evacuation by air is not a new one. Since the advent of the first airplane, uncounted numbers of patients have been flown to available medical facilities. Even today the dramatic flight from far regions of the world to specialized treatment centers within the Zone of Interior is a newsworthy item. The patient stricken by polio in such far places as Saudi Arabia or other exotic regions and evacuated by air quickly, smoothly and safely is not an uncommon occurrence.

From a purely military point of view, the Korean Conflict focused attention upon the feasibility and indeed the necessity of air evacuation of the severely wounded. The organized evacuation by fixed wing craft from Korea to Japan and thence to the Zone of the Interior was a smoothly-run operation which paid high dividends in reducing mortality and morbidity among the severely wounded.

An even more dramatic facet of patient evacuation was that seen in the front line regions when helicopters could pick up a severely wounded man from a battalion aid station in the front line area and quickly transport him to a forward MASH unit. The intrepid "chopper" pilots—Army, Marines, and Air Force—who became an essential factor in the early treatment of the extensively wounded American fighting man, focused the attention of the entire medical world on the potentialities of future air evacuation of military patients.

At the present time, the Military Air Transport Service (MATS) has a global network of organized flights for the easy evacuation of sick and injured patients. It is because of the superb support rendered by MATS that the Surgical Research Unit at Brooke Army Medical Center has had an opportunity to evaluate the practicability of the early evacuation by air of the extensively burned patient.

It has been our proud boast that, almost without exception, within two hours after the receipt of a telephone call from any military medical installation within the Zone of the Interior, a well-trained team of burn specialists can be airborne en route to the landing strip nearest the injured patient. Within the past few years a total of 110 patients with burn injuries have been successfully evacuated to Brooks Air Force Base, San Antonio, Texas and many of these individuals have arrived at Brooke Army Hospital within a period of 24 to 36 hours postburn.

It is largely on the basis of this wide experience in the transportation of the extensively burned individual that we feel so strongly that the early postburn hours represent the optimal time for transportation of this type of injury. The extensive thermal injury is unique in that a 48 to 72 hour stabilization period prior to evacuation would work to the detriment of the patient.

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At the present time, most clinicians practicing in the United States are fully aware of the necessity for aggressive resuscitation following an extensive burn. Knowledge of fluid and electrolyte therapy has reached the stage where most physicians can intelligently estimate the extent of body surface burned and apply some workable formula to ascertain with reasonable accuracy the necessary type and quantities of fluid to counteract this massive insult to the body economy. In most cases today, even the most extensively burned patient can be resuscitated by an aggressive program of fluid therapy. Death is unusual in the first few hours postburn unless the patient also has sustained a significant burn of upper respiratory tract mucosa.

In the last few years, members of our Unit have seen individuals who have sustained a burn involving nearly 100 per cent of the total body surface not only survive the initial hours but tolerate long air evacuation flights to San Antonio, Texas, without evident deterioration.

It is our belief that the safest period for evacuating burned patients to a specialized treatment center is within the first 24 to 36 hours postburn. Assuming that satisfactory initial resuscitative efforts have been instituted, the most dangerous phase of recovery extends from the third to the tenth postburn day. It is during this period that the electrolyte-laden fluid which occupies the so-called "third space" at the site of burn injury, and which was derived from fluids used in resuscitation, is mobilized with accompanying profuse diuresis. These changes constitute such immense stress that the patient's safe conduct during this period demands the most meticulous clinical judgment.

Patients who are referred to the Surgical Research Unit for treatment following extensive burns fall roughly into *three* categories. The first group includes those patients who have sustained a relatively moderate burn and who are resuscitated without difficulty following injury. They may be sent to this Unit because the local medical facility does not have the necessary personnel or surgical setting for long-term burn care, or because the burn involves the so-called critical areas of the hands or the face requiring specialized treatment if an optimal functional and cosmetic result is to be achieved. For patients of this category, we usually suggest that the referring physician evacuate the patient immediately following whatever resuscitative measures are indicated. A surgeon need not be in attendance during such an evacuation flight. Adequate care is given by the well-trained Air Force nurses and the competent medical corpsman aboard MATS aircraft.

A second category of burned patients includes individuals who have a somewhat more extensive insult and have been adequately resuscitated with or without telephone consultation with the members of the Surgical Research Unit. If physicians of the referring medical facility can accompany the patient, we recommend this evacuation procedure.

Finally, we have received a group of patients who have sustained overwhelming burns or who are being treated in a military medical facility that is unable to spare a clinician for the evacuation flight to San Antonio. Under these circumstances, the Surgical Research Unit sends a team of specialists to the nearest air field within the Zone of the Interior to assist in the early resuscitation of the patient and accompany him to San Antonio. As a rule, the team consists of one or two trained surgeons, one or two nurses, and one or two corpsman, depending upon the number of patients to be evacuated and the severity of their injuries.

The equipment that accompanies the team is contained in three foot-lockers. This equipment includes necessary burn dressings, specific fluids for therapy including dextran or liquid plasma, balanced electrolyte solutions, and glucose in water. In addition, a full tracheotomy set is included. Various numbers and sizes of urethral catheters and graduated containers for accurate meas-

urements of hourly urinary output are standard equipment. Large-sized needles and polyethylene catheters are included to establish a reliable route of fluid administration into a great vein if necessary. Sedatives, antibiotics, and cardiac respiratory stimulants are also included.

By bringing such equipment, the burn team can provide all necessary care effectively even in a small military or civilian medical facility with limited resources and can continue to provide such care throughout the air evacuation to San Antonio.

Summary

In the early postburn period, extensively burned patients can be quickly and safely evacuated by air over long distances. It is imperative that aggressive resuscitative measures be instituted at once prior to such evacuation.

Trained personnel, including surgeons, nurses and corpsmen, should be utilized in the evacuation of all patients who have full-thickness burns involving more than 25 per cent of the body surface.

In our experience, there are three categories of patients who are evacuated to special treatment centers: (1) patients who have relatively moderate burns for whom adequate medical attention is not available locally and who need no specialized attention en route; (2) extensively burned patients who may be flown to the Surgical Research Unit with a local physician in attendance, and (3) patients who have very extensive burns of such severity as to require the presence of a trained evacuation team.

ARMED FORCES DAY
Saturday, May 18, 1957

Role of the Air Force Veterinarian in Research*

By

LT. COLONEL JOHN T. STAPP, USAF (VC)†

MODERN developments and progress in science have been both rapid and dramatic. Not long ago the machine gun was a new and deadly weapon; now fission weapons can literally erase a civilization. Not many years ago man was contemplating the feasibility of flight; now he stands on the threshold of space travel. Such progress has not been a natural result of the evolution of our civilization. Long years of working, searching, and experimenting have been necessary to produce the knowledge required for such accomplishments.

Future progress will advance only as rapidly as we gain a knowledge and understanding of our problems. This is particularly true in the field of aviation. It is now possible to fly at altitudes and speeds limited only by the endurance and capabilities of the human body. New planes now being built place man in a foreign and adverse environment, yet require him to maintain an almost super-human degree of efficiency. Future advancement can be made only when we have developed a "space environment" in which man will not only survive, but will function efficiently and meet the physical demands of high speed, high altitude flying—and, which, when necessity dictates, will allow him to escape from his aircraft and return to earth alive. It is within this sphere of study that veterinary medicine becomes a most valuable asset in the support of aero-medical research.

The objectives of veterinary medicine in Air Force Research are twofold. First is to provide a standby group of qualified staff officers who are capable, in the event of emergency, to serve air commanders and surgeons as technical advisors in certain defensive and protective aspects of nuclear, biological, and chemical warfare. Secondly, veterinarians support Air Force research by providing professional service and assistance for all projects involving foods or animals, and further by having veterinary officers with special qualifications actively participating as research team members on such projects.

What education and experience especially qualifies the veterinarian for this important position in Air Force research?

1. The veterinarian has the same broad, firm basic science background as the doctor of medicine, enabling him to understand and assist in solving the problems of researchers in a number of different fields. With a minimum of additional training, he can branch out, and himself participate actively in specialized fields such as radiobiology and biophysics.

2. Because the veterinarian's education deals primarily with animals, he can easily transfer his knowledge of animal anatomy, pathology, physiology, and handling to experimental animals.

3. The veterinarian's education and experience in clinical diagnosis and treatment of animal diseases is directly applicable to problems of disease and disease prevention in experimental animals, enabling the veterinarian to accurately recognize and supply reliable test animals to the researcher. The test animal has in times past been a sadly neglected variable in biological research, which, uncontrolled, has invalidated otherwise valuable work. The biological researcher is coming to realize that as he standardizes and controls the culture medium and equipment used in experimentation, so must he standardize as nearly as possible his experimental animals if results are to be valid.

The educational background of the veterinarian particularly qualifies him for work

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in Aero Medical research. At the present time, accredited schools of veterinary medicine require two full years of pre-veterinary college work in an institution accredited by the state university or the state education department of the state in which it is located. This represents an accumulation of not less than 60 semester hours, and includes:

a) 8-10 semester hours of general inorganic chemistry, b) 5-8 semester hours of organic chemistry, c) 3-6 hours general botany, d) 4-6 hours general zoology, e) 4-6 hours comparative vertebrate zoology, f) 6-8 hours general physics, g) 6-8 hours English composition, h) 6-8 hours American history and political science.

Pre-veterinary students, though required to take courses leading toward a firm foundation in the basic sciences, are encouraged to gain as broad a general education as possible in the humanities, and are not required to pursue scientific or practical courses beyond those required as prerequisites for courses in veterinary medicine.

Admission to Schools of Veterinary Medicine, like Schools of Medicine, is on a competitive basis since there are usually more applicants than can be accommodated. Most schools of veterinary medicine consider for admission only those pre-veterinary students which have maintained at least a C+ average.

The entire curriculum consists of not less than 4,000 clock hours of classroom, laboratory, and clinical instruction, or 16 semesters, and approximately 145 semester hours of work. The approximate time devoted to the different major fields by a number of leading veterinary schools is given:

	per cent
Anatomy, including histology and embryology	15–17
Physiology, physiological chemistry and biochemistry	7.5–11
Pathology, Bacteriology, and Immunology	10.5–14
Parasitology	3.0–5.0
Pharmacology and Materia Medica	3.0–4.0
Food Hygiene	3.0–4.0
Surgery (exclusive of clinics)	5.0–6.5
Diseases of Reproductive System	2.0–3.0
Medicine	9–10
Clinics (large and small animal combined)	25–30
Miscellaneous and electives	4–6

There are five general areas of interest in which veterinary officers are qualified in veterinary research. They are:

1. Nuclear and thermonuclear studies with respect to the affects of such energy on human and animal health and foods.
2. Virology, bacteriology, and tissue culture with respect to their relation in biological warfare defense and all research.
3. Veterinary and comparative pathology for the support of medical laboratory service and all research.
4. Physiology, surgery, and laboratory animal techniques in support of aviation medicine and other research involving animals.
5. Food technology in support of flight feeding research and ration development.

It is not possible to subject man to all of the many hazards necessary to obtain data required. It is, however, possible to use animals and extrapolate the information obtained to the human body. Thus the veterinarian takes his place as a vital member of the research team.

Some of the current research projects in which animals are employed as human substitutes include:

a. *High altitude problems.* Valuable information about space environment and its influence on body functions has been obtained by projecting mice and monkeys into the ionosphere. Pictorial recording of animal reactions to reduced gravity and other recorded information are being studied and applied to airplane design, development of protective equipment and planning of future research.

b. *Deceleration problems.* The many problems of deceleration have become more understandable and closer to solution by extrapolating physiological results obtained from the use of primates. Data collected

from animal experiments made it possible to use the human volunteers now engaged in the final phases of this project.

c. *Acceleration problems.* Data to protect man against acceleration hazards has been accumulated in much the same manner as for deceleration. Physiological and pathological changes observed in animals can, in most instances, be expected to occur in man.

d. *Space flight and space travel.* Although space remains as the last probable frontier for human invasion, conquest is coming ever closer by the experimental use of animals. Monkeys and mice have been projected to phenomenal heights and lived to return and furnish valuable scientific information. Knowledge gleaned from the existence of animals in a sealed container has made it possible for man to exist for 24 hours in a completely artificial environment—the first stepping stone to space travel. As it was so aptly put in the *Journal of Space Flight.* "There is only one way to solve this problem, by direct experimentation, first on animals, then on human beings here on earth, then under weightless conditions."

e. *Nuclear energy.* Problems in this field are ever increasing and will become of greater importance as many projects using this type of power are developed. Animal studies are essential not only to determine pathological changes which result from exposure, but to establish dose tolerances, protective devices, decontamination, treatment, and other vital knowledge.

f. *Cardiac research.* This is one of the oldest problems in medicine and one of the most critical for flying personnel. The physician depends on the veterinarian for assistance in this effort because of his knowledge in physiology and pathology, and because animals serve as the experimental subjects.

The usefulness of the knowledge and skills of the veterinary profession is not limited to those studies just discussed. The Air Force veterinary officer, because of his professional education, military training, and experience is a valuable catalyst in such research fields as foods and nutrition (including flight feeding), radiation sterilization or preservation of foods, surgery and trauma, virology, immunology, food sanitation, biological and chemical warfare defense, pathology, and military equipment, to name only a few.

The influence which the veterinarian has on research is well exemplified by his responsibility for technical supervisor of animal colonies. These animals represent millions of dollars, only a small portion of which is the initial cost. Once a study begins, successful outcome hinges on the veterinarian's ability to maintain the health of all animals involved. An outbreak of disease, poor diet, adverse environment, can all influence the accuracy of research results. Therefore, technical supervision of the production, management, and use of living animals by personnel with specialized training becomes a necessity not only to protect the money investment involved, but also to insure successful completion of the experiment.

Potential value of the veterinarian assigned to research support is emphasized by those working in radiobiology. The largest number of trained veterinarians qualified to interpret the effects of ionization radiation and fall-out on living animal tissues and to guide this nation in problems of health hazards with respect to the effects of nuclear energy on foods and food animals is in the Army and Air Force Veterinary Corps. This nation has a nucleus of ten well qualified military veterinary officer specialists in this field and, in addition, a network of approximately 300 indoctrinated veterinary officers capable of competent field support. Knowledge and training gained from research studies have made this possible. This potential will have a direct influence on this nation's survival in the event of an enemy nuclear attack, particularly since no civilian capability to do this work now exists or will exist in the foreseeable future.

The program of veterinary research support is indeed a diversified one. To render this service in a competent manner requires that a group of highly specialized and skilled officers be available. Some must have a spe-

cialized knowledge of animal husbandry; others must be qualified in such fields as public health, pathology, physiology, radiobiology, virology, and bacteriology. These fields of study, as well as other specialties, have been pursued by veterinary officers in civilian institutions, service schools, and in-service training programs. The latter are equally important and comprehensive as civilian institutions even though formal degrees are not rendered. Currently the Air Force veterinary service has officers with the following specialized training and graduate degrees working in their respective fields:

a. *Master of Public Health:* 40 graduates, which include two specializing in virology, one in hematology, two in food technology, and one in tissue culture techniques.

b. *Master of Science:* Three graduates, which include one in bacteriology, one in surgery and physiology, and one in radiobiology.

c. *Doctor of Philosophy:* Three graduates, which include one in comparative pathology, one in radiobiology, and one in physiology and surgery.

d. *Nine months residency in management of laboratory animals:* Six.

e. *Six months training in radiobiology at Reed College:* Four.

f. *Two weeks training in veterinary radiobiological health:* 112.

g. *Four months graduate training in veterinary medicine:* 22.

h. *Extended in-service training:* 16, which include seven in radiobiology, four in laboratory and test animal management, four in pathology, and one in advanced veterinary food inspection.

These men form the specialized nucleus for veterinary research support in the Air Force. Training which these officers have received has been dictated by the nature and demands of Air Force medical research. At the present time veterinary officers are assigned to support studies at the following installation:

a. Aero Medical Laboratory, Wright Air Development Center: 7 Officers

b. Aero Medical Field Laboratory, Holloman Air Development Center: 3 Officers

c. School of Aviation Medicine, Randolph: 2 Officers

d. Balcones Research Center, Texas: 3 Officers

e. Oak Ridge Institute of Nuclear Studies: 3 Officers

f. Hanford Atomic Products Operation (AEC): 2 Officers

g. Naval Radiological Laboratory, California: 1 Officer

h. Arctic Aero Medical Laboratory, Alaska: 1 Officer

i. Biological Warfare Laboratories, Fort Detrich, Maryland: 2 Officers

j. Armed Forces Institute of Pathology: 7 Officers

k. Naval Biological Laboratory, California: 1 Officer

l. Walter Reed Army Institute of Research: 1 Officer

m. Epidemiological Flights and Medical Laboratories: 3 Officers

It is interesting to note that the only veterinary resources available to support these research projects exist in the military. Qualified and trained civilian veterinarians capable of doing this work exist only in limited numbers and could not be induced to work for the current pay scale now available in the Armed Forces, civil service or contractual agreements.

No discussion of the role of the Air Force veterinarian in research would be complete without some thought about the future. Will there be a continuing need for veterinary support? The basic answer to this question lies in the fact that there is no conceivable limit to man's progress. Each accomplishment, advanced and astounding as it may seem, only stimulates new problems, arouses new curiosity to find out what "lies beyond." Future advances will take man farther and farther from his normal habitat—Earth. The cascade of problems which evolve will more and more require the use of animals and veterinary medical support. Only the most basic problems of future aviation are now being

studied and solved. The future will undoubtedly reveal new fields not yet visualized —and new uses for the many capabilities of the veterinary officer.

The support given to medical research by the veterinary profession is a valuable contribution. The necessary use of animals in present research activities requires the assistance of a veterinarian if results are to be properly extrapolated to the human. His special training and skills make him a valuable asset in many other research fields; he represents the only reservoir of knowledge and skills in some essential phases such as the effect of radio-active fall-out on animals and foods. Progress in medical research can result only in a continuing, if not increased need for veterinary support.

ACKNOWLEDGMENT

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Cold Weather Survival*

By

MAJOR STANLEY LUTZ, JR., USAF (MC)†

THE story of man's struggle for survival against cold weather is recorded throughout the pages of history. Not least in importance is the critical effect of cold weather upon military campaigns and operations which were destined to shape the course of history and our civilization as we know it. Recall briefly, if you will, the struggles of Hannibal to cross the Alps; Napoleon's Russian campaign and the thousands of French soldiers who met a frozen death on the icy steppes of Russia, and in our own military history, the almost overwhelming suffering of Washington and his soldiers at Valley Forge, not to mention our most recent experiences in the numbing, freezing cold of Korea.

This problem of survival in cold weather is not an academic one—it is a present and continuing situation which we are forced to meet almost every day. At the present time, the Eighteenth Air Force is supporting the DEW LINE Project, with aircrews and aircraft flying across the frozen northern expanses of our continent from Alaska across Canada to Greenland almost daily. In the Antarctic we have aircrews and personnel working with the Navy in support of Operation DEEP FREEZE; therefore, we do have with us the almost daily possibility that in an emergency situation some of our aircrews and personnel may be forced to crash-land and struggle for their existence in the midst of a frozen Arctic wasteland. It is this type of situation which I wish to discuss today—a true survival situation. The medical aspects I will bring in as they are related to the over-all picture since in my opinion they lose their true significance unless they are discussed in relationship to the situation in which they must be employed.

Most of you have heard or read the statement that in a survival situation fear is the most potent danger to overcome. I am going to tell you a story to support this statement, and then I am going to disagree with it on a technicality. I can only document this illustration by saying that it was told to the group of which I was a member as we were going through the Arctic Indoctrination School at Ladd Field, Fairbanks, Alaska, in January 1952. According to the story, a Fighter Pilot took off from one of the Alaskan bases on a routine mission. It was during the middle of the winter with nothing unusual in the way of weather presenting itself, other than the usual below-freezing temperatures which prevailed. Approximately half-way through his flight, the Pilot radioed his home base and stated he was experiencing engine difficulty and would be forced to crash-land. He gave his position as he determined it and stated that below him he saw the frozen bed of a river, covered with ice and snow, and that he would attempt to land on it. After this transmission, nothing more was heard. Approximately two and one-half hours later, ski-equipped rescue plane located the aircraft and was able to land on the frozen river near this aircraft. The rescue team reconstructed what must have happened as follows:

Apparently the Pilot had made a fairly good landing, and was able to crawl out of the aircraft, walk around it and inspect it, and then lean against the side and smoke a cigaret. After this, he walked to one bank of the river gazed upon the rocky ice-covered terrain with heavy foliage over-hanging the bank, and then walked back to the plane where he smoked a second cigaret. After this, he walked back to the other bank, gazed upon

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a similar scene and then back to the plane where he smoked his third cigaret. He then drew his .45 and shot himself through the head. Fear killed that man! Whether this was due to just lack of innate intestinal fortitude or a lack of indoctrination, we shall never know, but without a doubt it was fear that pulled that trigger.

Now for the technicality on which I wish to disagree with the statement, "Fear is the most potent hazard." Most cases are not like the one I just described. Actually, most individuals make a fight for their lives in an attempt to survive. You can take the most courageous, bravest, best-indoctrinated individual you can find, place him in the middle of an Arctic wasteland in the dead of winter and he will die as surely as will the most cowardly individual you can find and put in the same situation IF he does not have proper clothing and equipment. In this situation it is not fear that would kill this man but it is the cold, and that is the point I wish to stress. Cold is the killer in this situation. Every action, every movement, every thought and every plan is predicated upon the effect that the cold will have on the individual as a result of the action he is about to take; therefore, while I do agree that fear is an important hazard and a potent danger, I also want to stress to you once again that the cold is the important element which must be fought.

The first point I would like to discuss specifically is indoctrination. Granted, this term is over-used and over-worked, but in a situation such as we are talking about, it may mean the difference between life and death. By indoctrination, I mean the proper instructions to personnel who are traveling through or over this area; instructions concerning the clothing that they should wear; the equipment they should have with them and aboard the aircraft; and the procedures they should employ in the event that a survival emergency should occur. Please do not get the idea that I am advocating that we should stand by the Quartermaster table and personally issue all these items of clothing and equipment. What I do mean is that I feel that we, as medical officers at any level of command, have a definite responsibiilty to all our personnel to give them the benefit of our training and experience in instructing them to the best of our ability in all aspects of survival in cold weather situations which may possibly at some time enable them to live instead of die.

Medically speaking, I feel that one of the most important, if not the most important points which we must stress to all our personnel is the factor of heat balance. It has been proven by the personnel of the Arctic Aeromedical Laboratory that a normal *resting* individual properly clothed and equipped in standard Air Force Arctic clothing can maintain his heat balance at temperatures ranging from 0°F to minus 5-10°F, depending on the wind factor. Below that temperature, the resting individual is unable to maintain a heat balance and he swings over to the negative side and begins losing body heat. All Arctic clothing is designed to enable an individual to retain this body heat and it is up to us to show these people not only how to wear the clothing properly but why they must wear it properly. If they can be made to understand why, then much better cooperation is inevitable.

For example, the problem of keeping the underclothing dry is an extremely critical one. Any work effort performed by the individual will naturally increase his heat production. If he does not loosen his clothing or remove some of it, he will soak his underclothing, and even the next layer with perspiration within a very short time. Upon stopping work, this cold layer of moisture will immediately conduct body heat away from the individual and he will lose the value of the insulating power of the clothing.

A factor which enters here is the physical fitness of the individual. Physical fitness will enable him not only to perform more actual work but it will reduce the danger of fatigue as compared with an individual who is not in good physical condition. It will reduce the level at which he will perspire, it will enable

him to stand shock better if he is injured, and will contribute to his over-all success in his fight for survival.

Another factor which is not often recognized is that the weight of the clothing plays an important part in this matter of exertion and moving about. By their design, these clothes are cumbersome and heavy, and this added weight and hindrance quickly will cause overheating and perspiring. Movements will be clumsy and inept, and if this clothing is not ventilated or stripped down during work periods, its insulating value will soon be lost.

Another factor is keeping snow off the clothing and the warm parts of the exposed clothing when ventilating it. One good example is on the shoes and the lower part of the trousers. Upon entering the shelter all this should be brushed off and removed so that it will not melt and freeze again when returning to the cold outside the shelter. If this is not done the Mukluk's or "Bunny Boots" will soon become nothing but blocks of ice around the feet and you can easily visualize the results.

In line with this consideration of heat balance, think of the problems associated with treating an injured man. For example, say that he is in shock. As you know, the standard treatment for shock is to maintain the body heat but visualize, if you will, an injured man in shock stretched out on the ice and snow. How are you going to maintain his body heat? Even though you can put insulation, parachutes, bags, possibly an inflated life raft between him and the ground, how will you apply external heat to this man? It takes time to construct a shelter and in the meantime the man is exposed to the elements. With shock, the body temperature drops; therefore, this in addition to the negative balance which is induced by his environment creates a situation which must be met promptly and with ingenuity as the situation demands.

One of the basic criteria that must be followed in the Arctic is that circuation must be maintained. Clothing should be loose. Fingers and toes should be moved to induce better circulation; yet in the control of hemorrhage you violate this basic criteria, but it must be done. It should be done with pressure points first, if possible, or with compresses, and finally if these fail, with tourniquets. Here, again, consider the danger of tourniquets with this patient. With the patient possibly already in shock, you shut off the circulation to an extremity. I am sure you can visualize what will happen to the tissue in this situation. There are things you can do; for example, if it is an arm, remove it from the garment and place it next to the bare body in an attempt to keep it warm. If it is a leg, it could be placed next to the other leg. Objects can be heated and placed alongside, but all of these are desperate measures and the percentage is weighted heavily against that tissue ever regaining its viability, once a tourniquet has been applied. Sometimes, however, it is a decision which has to be made and must be made to save the individual, not the extremity. In such cases there is no choice.

In the remarks I have just made I have been talking about taking care of individuals. This brings up two basic points which are axiomatic in this type of situation. First of all, you should crash-land with the plane if it is at all possible, and second, stay near the plane after it has crashed. Do not attempt to walk out. Crash-landing with the plane gives you a group with which to work. A group has a much better chance of surviving than an individual. Not only that, but in the plane is all your equipment, food, and additional items which you could use in your fight for survival. Jumping from the plane scatters the group. It also deprives you of the equipment in the plane, food and additional items which you could possibly use. Furthermore, if an individual is injured in jumping, there is a possibility that no other member of the group is near enough to give him aid. An injured man alone has a poor chance of surviving. Remaining by the plane is basic because the equipment which you need is there. Consider an area such as

Alaska alone—the square miles encompassed in this area equals one-fifth the total area in the United States, and yet its population is less than 1,000,000. You can easily see that you could walk quite a distance in an area such as this and never encounter another human. Also, the crash site of the aircraft is valuable as a marker for rescue planes. It is much easier to see the downed plane on a distant snow field than a lone individual struggling across it.

Assuming that a group has survived a crash-landing, one of the first things that should be done is to establish a "buddy system" to watch each other for the first appearance of frostbite. With any degree of wind blowing across that type of terrain, frostbite can appear suddenly and without much warning. Telltale spots as soon as they appear can be detected by your buddy sooner than you will notice them yourself. They should be immediately treated; covered with a warm hand, or by blowing into the back of your fur-covered mitten and placing this warm fur against the spot will thaw it out quickly, if caught in time. You should especially watch the nose, cheeks, fingers and toes. As an illustration of something that is not usually considered, I personally have experienced the fact that in temperatures below minus 50°F, breathing the moist warm air out through the nostrils soon causes this moisture to be condensed around the nostrils, and ice will form in the nostrils to the extent that you have to reach up and crush it in your nose in order to expel it, or bend over the fire in order to heat it until it can be crushed and expelled.

The effects of breathing cold air are more localized around the mouth, nose and throat than they are down in the lungs. You will get a nasal congestion and a heavy secretion of mucus from the nose. The throat can become irritated and you will experience an exceptional amount of thirst. So far as I have been able to discover there have been no cases reported of actual damage to the lung tissue caused by breathing deeply of this extremely cold air. If I may give another personal illustration, during the time that our group was on bivouac the temperature dropped to 65° below zero. At one point after my nose had become congested and I was breathing through my mouth, I suddenly felt a mass of something in my mouth. On checking I found that it was a large filling that had dropped out of one of my rear molars. Upon returning to the base, I took the filling to the Dental Surgeon and talked with him about it. The only conclusion we could reach was that due to breathing through my mouth this exceptionally cold air the filling was a large enough mass of metal that it contracted and broke loose from its mounting.

One other item concerning the breathing of cold air as regards the taking care of your patients. You should be very careful about positioning of blankets around the face. As the warm air is breathed out against the blankets it condenses and then freezes, and if you are not careful, an icy corner of the blanket may soon fall down on the patient's face. If the patient is unconscious or unable to move his head or arms, he may soon have a frostbitten face from where the icy blanket has been in contact with it.

It goes without saying that in a situation such as this, food and water are critical items. I will not dwell on this other than to stress three points: The first is an indirect point, going back to the fact that here again is a good reason why you should stay with the aircraft and crash-land with it, if at all possible, so that you will at least have a chance of getting at part, if not all, of the emergency rations stored on-board. Secondly, hot foods and hot drinks are extremely valuable in helping maintain this body heat balance. One point to watch for are the hot metal surfaces of containers lifted to cold lips, especially in feeding patients. If this is not carefully watched, it is possible to get some very severe burns about the lips and face. You can see how this can easily happen when you consider that gloves are worn most of the time and in picking up a metal cup the hot temperature of the

metal surface is not realized. It is smart practice to cool one side of the container with a piece of ice or snow before placing it against your patient's lips. Also in line with this, a word of caution in the melting of snow and ice for drinking water. In these wide expanses it has been shown that the freshly fallen snow is safe to melt and drink, but in the process of melting it remember that it takes 8-10 volumes of snow to produce one volume of water so be sure that the snow is in contact with the bottom of your container at all times. Otherwise the water may evaporate and the bottom of the container burn out.

The third factor which I wish to discuss is constipation. In a survival situation extending over a period of 5-7 days or longer, this can become a problem. I will not dwell on the effects of constipation because you are all aware of them. My point here is the urging that is needed to get the men to perform this necessary body function of defecation. If you will consider the situation for a moment you will see what I mean. Consider yourself in this situation where you would have to go out to an icy wilderness, lower 4-5 layers of clothing, then stoop down hanging your bare buttocks above a slit trench gouged out of the ice and snow, with the icy winds whistling around your legs. It is easy to see that the main thing this situation does promote is constipation.

Another medical aspect which should be considered is snow-blindness. While this in itself is usually only a temporary disability, it can sometimes be the difference between life and death in a survival situation, especially if you are alone. Sun glasses are an absolute must in travel over this terrain and if they are lost or broken, substitutes should immediately be constructed. This can be accomplished by shields made of any type of cloth material with narrow slits cut in it which will not transmit light. It will also help to darken the high prominent areas of the cheeks as well as the eyebrows and sides of the nose. Personnel who are not properly indoctrinated sometimes are not aware of this danger and do not realize the effect that the brilliant reflection from the snow and ice can have on their eyes. Prevention is a key word here.

Two other relatively minor conditions should be mentioned in brief—sunburn and windburn. Again the key word is prevention as much as possible. The skin should be protected by coating it with protective creams, if available, and the face sheltered from wind and light reflection if it is necessary to be exposed for any length of time. Moisture should never be allowed on exposed surfaces when emerging from shelters into the wind and reflected light. Again I emphasize prevention is a key word in this situation, also.

There is one problem which is often not recognized as being a problem in an Arctic survival situation. This is the danger of carbon monoxide poisoning. The statement has been made that in the history of Alaska since the white man moved into this territory more individuals have died of carbon monoxide poisoning than have frozen to death. In any type of survival shelter that is constructed, whether it be tent, snow house, lean-to, snow caves, etc., there should be adequate ventilation at all times. The cold Coleman stove was notorious as a killer by means of the carbon monoxide which it generated. The new Arctic stoves now in use are not nearly as bad in the production of this gas but it is still strongly recommended that they not be used inside the shelter, but should be used in the entrance way or in a separate shelter where cooking is done. Even with only candles burning in the shelter to help maintain warmth, it is essential that these air holes be maintained for ventilation. If properly placed, they will not decrease the warmth of this shelter and they will be an important factor in preventing death due to this most toxic gas.

The final major points which I wish to stress is the psychiatric aspect of this survival situation. Referring once again to the statement I made in the beginning concerning fear being an important and potent hazard, records and talks with individuals

who have been brought out of this type of situation all agree that there is a numbing, chilling, paralyzing type of fear which seizes an individual when he is thrust into this environment and knows that he must survive by his own efforts, or die. In line with this, one of the most important and vital necessities is the will to live. The individual must overcome his fear and once again indoctrination can play an important part in preparing this individual to meet the situation and overcome his fear. The second essential factor is leadership. Leadership must be strong and positive. Minds and hands must be kept busy at all times. There are many things which can be done around the camp to do this. There is constant improvement which can be made on the shelters. If there are injured who cannot do too much work outside, have them maintain records and keep a log of all events. There should be constant watch for search aircraft 24 hours a day. Signal fires should be prepared. When an aircraft appears on the horizon, that is no time to start building signal fires. A point here is that immediately after the crash, while the engines are still warm, the men should be instructed to drain the oil. It can be drained directly on to the snow and ice where it will coagulate and then can be used to create the heavy dark smoke which is necessary for a good signal to be seen against the whiteness of the snow and ice. Signs can be constructed in the snow and ice, blocks cut from the snow and stacked on each other to cast shadows. The area can be surveyed and laid off so as to indicate the best runway. By using equipment from the plane, blocks of snow to cast shadows, any other ingenious devices, a fairly good runway indication can be laid out.

Finally, I would like to impress that a sanitary area should be established and strictly enforced. In my opinion, in this vast wasteland, excreta from a few individuals will not create a disease problem, as it would in the tropics. As soon as it falls on the snow and ice it will be frozen. In this camp, as in any other, discipline and morale is important and it is one manifestation of discipline and morale that this area be established and maintained. A sloppy camp here is the same as a sloppy camp elsewhere and should not be permitted. All this goes back to strong leadership which is necessary in a group to keep them functioning as a group and struggling as a group to survive.

In summary, I would like to repeat these comments are not academic, that a potential situation such as the survival situation confronts members of our services almost daily. I would also like to repeat and stress my feeling that we as medical officers have a definite responsibility in the indoctrination of our personnel so that they may be better qualified to meet these situations. The Marine Corps has a slogan in its training camps which goes something to the effect that no officer should ever have it upon his conscience that a man died because he failed to do his duty in training that individual to the best of his ability. I feel that we, too, should accept this type of slogan and assume our responsibility in this field.

From our medical viewpoint, I would like to stress three points:

1. Fear is important, equipment is necessary and indoctrination is essential.

2. Medically, the most important factor to consider is the preservation of our body heat balance whether it be in daily activities or in the treatment of our casualties.

3. From the psychiatric viewpoint it is essential that all individuals have the will to live and there be strong positive leadership.

Tropical Jelly Fish Sting—Reaction to

By
EDWARD B. TYSON, M.D.

IN STRONG'S revision of Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases, there are several reports on the results of stings from the Coelenterate, or jelly fish.

Briefly, in the phylum coelenterate, these sea animals are of a very simple type. There are two morphological kinds of coelenterates, namely the Polyp and the Medusa.

The Medusa, or jelly fish is an umbrella-like Coelenterate which has tentacles, sometimes of great length, hanging down from the margin of the central body. They are popularly called jelly fish. Some jelly fish resemble a large, translucent bluish bubble, about the size of a football, with long thin slimy white tentacles which float around beneath and on the surface of the water. It is believed that the sting originates from the long filaments, which eject poisonous barbs into the skin.

I would like to report my own symptoms following an encounter with an unspecified type of very large jelly fish off the coast of Western New Guinea during the war.

I was swimming toward the shore from a diving raft, and had just started to wade into shallow water when I suddenly ran into what appeared to be a long slimy, white string floating on the surface of the water. It came in contact with the upper anterior portion of the left thigh, and the scrotum. There immediately developed a terribly intense burning and prickling sensation in these areas. It felt exactly as though these parts had been plunged into boiling water. I immediately suspected what had happened, and, recalling that in Hawaii the local remedy was an application of wet sand, I tried this. However, the hyperesthesia of the skin was so great that the sand could not be tolerated.

The pain and burning became so severe that I didn't quite know exactly what to do. Cold applications of epsom salts, mineral oil, cleaning with soap and water and applications of boric acid ointment were to no avail in obtaining relief.

Not knowing the nature of the poison, and fearing that it might be a respiratory depressant, I decided against the use of morphine. Later on, however, I did take one grain of codeine and fifteen grains of aspirin. These drugs produced no relief.

By this time, the pain was so great that I became nauseated. I was seized by a severe restlessness, and would sit down, lie down, and walk around for short alternate periods of time. I began to notice pain in my back and chest, and I experienced a mild rigidity and pain in the abdominal muscles, probably similar to some degree, to that found in Arachnidism.

At this point, my thigh and scrotum were markedly erythematous, and there were three long thin transverse lines of small blebs across the surface of the skin where the tentacles had touched it.

About four hours had now passed. My pulse remained at about seventy per minute. The oral temperature was 99.2 degrees F., and the blood pressure was 130/90. For a short time, there were mild symptoms of dyspnoea.

The pain and hyperesthesia of the skin were excruciating, and I had to remove my trousers because of the distress they caused from touching the skin.

At the end of seven hours, the intensity of the cutaneous burning and prickling had begun to abate; likewise the systemic reaction. I passed a very restless and sleepless night. However, some of this might have been attributed to a night attack alert we experienced.

The next morning my left leg was stiff and sore, and the hyperesthesia was still present. There was no increase in the number of skin

blebs, and the erythema had subsided. In about four days, all symptoms had completely disappeared.

Another similar situation occurred. An enlisted man, while swimming in the same area some days later, was stung on the chest and scrotum by an unspecified type of jelly fish.

His symptoms were extreme pain and hyperesthesia of the areas involved. There was edema of the penis and scrotum. Long transverse erythematous lines and blebs appeared across the chest.

The patient demonstrated symptoms of semi-rigidity of the muscles, moderate chills, severe pain of the contacted skin area, weak rapid pulse of about 110, blood pressure of about 140/90, increase in body temperature, vertigo, mild abdominal rigidity, nausea, and pain in the back.

One-half grain of morphine was given and 0.5 cc of a 1/1000 solution of adrenalin was given subcutaneously, and several intravenous injections of a calcium gluconate solution were given four hours apart. Alcohol sponges were applied to the contacted areas which appeared to relieve the pain somewhat.

The patient remained in the hospital over three weeks. There was some faint scarring of the skin areas from the blistering. Due to the prolonged edema of the penis, the blood supply was diminished and there was some sloughing of the fore skin which necessitated circumcision.

At that time we did not have the antihistamines or ACTH or Cortisone or any of the latter's more powerful analogues. Since this time, these newer medications may have been tried in such similar cases. If not, it would be interesting to see if they would afford any relief from the severe pain, swelling, and systemic symptoms, and apparent allergic reactions.

With members of the armed forces stationed all over the world, it is my opinion that this problem is an important one, even though it may not occur too often.

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Malpractice Conviction without Expert Evidence?

By

CAPTAIN JAMES W. HUNT, JAGC, *U. S. Army**

IN THESE days it is fashionable to take polls on every subject from football to foreign policy. An extremely interesting poll might be taken among the physicians in a hospital. Let us suppose their opinions were sought on the question whether it is possible for a physician to be convicted of malpractice in the absence of specific adverse testimony by one or more expert medical witnesses, e.g., testimony to the effect that some particular activities on the part of the accused physician actually constituted malpractice according to the weight of medical authority. You would probably find that 100% of your medical staff were aware of the danger of malpractice prosecution even in situations where such charges were completely without basis. Yet you might be somewhat surprised at the number who would prefer simply to ignore such a possibility on the optimistic, albeit dubious, theory that it was not the sort of thing which was likely to happen to them personally, however much it might happen to others.

It is not a giant step from this willingness to shield one's eyes from reality to another haven of temporary escape, a determined clutching at straws of hope for successful defense, should prosecution come. So some, perhaps a majority, might find surcease from worry in the earnest conviction that, though malpractice litigation might be instituted, lack of medical professional testimony in support of such an allegation will make recovery impossible.

Such a proposition is not without basis in judicial thought. Courts must, of course, draw their own conclusions of law and juries must make their own findings of fact. But the opinions of experts (i.e., witnesses who have greater knowledge on a given subject than the court or jury, whether based on training or practice) have long been recognized as legally acceptable evidence, to clarify the issues and make logical, clear-cut decisions easier, in the interests of justice. The value of medical professional opinion to a court and jury charged with the duty of deciding whether a physican has departed from the accepted standards of medical practice in the appropriate locality (the essence of malpractice), is self-evident, and it is a well-established general rule that such expert evidence is a condition sine qua non to a successful malpractice suit.

The difficulty lies in the word "general." A general rule of law which admits of no exception is a rare species indeed, if it exists at all, and well-defined exceptions are recognized to the rule requiring expert medical testimony for recovery in a malpractice action.

One exception to the rule is founded in the common sense concept that there can exist situations where the conduct of the physician is so obviously negligent that its impropriety is readily apparent to the ordinary layman, e.g., where a surgeon neglects to sterilize a hypodermic needle prior to use. In such instance, the court or jury is considered to be capable of reaching specific conclusions as to negligence without any specialized knowledge and without resort to expert testimony. Little difficulty is encountered with this exception, due to the infrequency of its application.

Another exception to the general rule is based upon a doctrine of tort law called *res ipsa loquitur*. If the subject of malpractice generally is distasteful to physicians, how much less digestible can we expect to find a recondite legal theory which wears a mask of Latin phraseology. Yet *res ipsa loquitur* has been the determining principle in certain malpractice cases, and a recent development

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in regard to this doctrine, which we shall duly note, may result in its more extensive application.

In literal translation, *res ipsa loquitur* means "the thing speaks for itself." It is a well-defined and universally recognized exception to the rule that there can be no recovery for negligence, or for malpractice, which is negligence on a professional scale, on a mere showing of injury. There are such things as unavoidable accidents, and an injured party who alleges negligence will generally fail in his action in the absence of affirmative evidence that the injury was actually traceable to a negligent act or omission on the part of the alleged wrongdoer. But the courts have found situations where the existing web of circumstances could only have been spun by the black spider of negligence, where the mere fact of injury justifies a presumption of negligent conduct, where, in short, "the thing speaks for itself."

In many cases where injured parties have sought compensation for damages on the theory of *res ipsa loquitur,* the courts have based their determinations as to the applicability of this doctrine on the presence or absence of three specific factors. In the first place, the unfortunate occurrence which produced the injury must be of a somewhat unusual nature in the circumstances involved; for if it were a routine result, there would be no logical basis for an inference of negligence. Secondly, the operation or agency which caused the injury must have been under the exclusive control of the person from whom damages are sought; for if such agency were subject to the control of a number of individuals, acting independently of one another, negligence could hardly be imputed to any one of them on an arbitrary basis. Thirdly, the accident must not be a consequence of the injured party's own voluntary act or omission, for justice could not support a presumption of negligence in favor of one whose own action had contributed to his injury.

A recent case* appears to indicate an extension of the potential application of *res ipsa loquitur* to malpractice cases. There, a physician diagnosed a patient's leg pain as neuritis, and prescribed and administered several injections in the patient's right arm. The patient suffered a "wrist drop," and sued the physician for negligence, claiming *res ipsa loquitur.* Medical expert testimony in the suit was conflicting. The injury was to the radial nerve, and while the experts agreed that is was common medical practice to make injections of this type into the deltoid muscle, one expert testified that it is not common medical knowledge that the injection of any solution in the deltoid muscle may cause injury to the radial nerve; other experts testified that a known danger in any injection is hemorrhage which can cause liquid to travel to the nerve, surround it and cause scar tissue and pressure signs on the nerves. In determining whether *res ipsa loquitur* applied, the court had no difficulty in deciding that the agency causing the injury was under the exclusive control of the physician, and that the patient did not contribute to the injury by a voluntary act or omission. The decision turned on the question whether the occurrence was so unusual as to logically justify an inference of negligence. At first glance it might appear that such an inference would be precluded by the fact that some medical experts had testified that this occurrence was a known danger in any injection. But the court left the decision squarely in the hands of the jury, to be decided as a question of fact. The court stated that needle injections in the muscles and elsewhere are commonplace today and it is a matter of common knowledge among laymen that they do not cause trouble unless there is a lack of skill or defective serum, and if anything does go wrong it is a matter for explanation by the person causing the injury. If common medical knowledge clearly contradicted common laymen knowledge, the former would control. But in the light of the conflict here, the court would permit the jury to apply common laymen knowledge at their discretion despite the existence of some

* Bauer v Otis, 284 Pacific 2d 133.

contrary medical testimony. Bearing in mind the undeniable fact that conflicting medical testimony is given in a material number of cases, the possible far-reaching effect of an extensive adoption of this concept by the courts is readily apparent.

It is to be hoped that a poll will help alert the physicians on the staff to the danger of complacency in the field of malpractice litigation, and encourage those among them who may have chosen to ignore the problem in the past, to subject it to careful examination and seek its solution in the adoption of a healthy attitude of prevention.

"It is the responsibility of all citizens to use the strictest self-discipline in asking Washington to do the things they could more effectively do for themselves. The point to remember is that what the government gives, it must first take away."—JOHN S. COLEMAN, President, Detroit Chamber of Commerce and Burroughs Corporation, Detroit.

EDITORIALS

The Responsibilities of the Medical Profession in the Use of X-Rays and Other Ionizing Radiation

Statement by the United Nations Scientific Committee on the Effects of Atomic Radiation

THE United Nations General Assembly, being aware of the problems in public health that are created by the development of atomic energy, established a Scientific Committee on the Effects of Atomic Radiation. This Committee has considered that one of its most urgent tasks was to collect as much information as possible on the amount of radiation to which man is exposed today, and on the effects of this radiation. Since it has become evident that radiation due to diagnostic radiology and to radiotherapy constitutes a substantial proportion of the total radiation received by the human race, the Committee considers it desirable to draw attention to information that has been obtained on this subject.

Modern medicine has contributed to the control of many diseases and has substantially prolonged the span of human life. These results have depended in part on the use of radiation in the detection, diagnosis and treatment of disease. There are, however, few examples of scientific progress that are not attended by some disadvantages, however slight. It is desirable therefore to review objectively the possible present or future consequences of increased irradiation of populations which result from these medical applications of radiation.

It is now accepted that the irradiation of human beings, and particularly of their germinal tissues, has certain undesirable effects. While many of the somatic effects of radiation may be reversible, germinal irradiation normally has an irreversible and therefore cumulative effect. Any irradiation of the germinal tissues, however slight, thus involves genetic damage which may be small but is nevertheless real. For somatic effects there may however be thresholds for any irreversible effects, although if so these thresholds may well be low.

The information so far available indicates that the human race is subjected to natural radiation,* as well as to artificial radiation due to its medical applications, to atomic industry and its effluents and to the radioactive fall-out from nuclear explosions. The Committee is aware of the potential hazards that such radiation involves, and it is collecting and examining information on these subjects.

The amount of radiation received by the population for medical purposes is now, in certain countries, the main source of artificial radiation and is probably about equal to that from all natural sources. Moreover, since it is given on medical advice, the medical profession exercises responsibility in its use.

The Committee appreciates fully the importance and value of the correct medical use

* The radiation due to natural sources has been estimated to cause between 70 and 170 millirem of irradiation to the gonads per annum in most parts of certain countries in which it has been studied, although higher values are found locally in some areas. See the reports "The hazards to man of nuclear and allied radiations" published by the United Kingdom Medical Research Council in June 1956, in which also the millirem is defined; and from information submitted to the Committee.

of radiation, both in the diagnosis of a large number of conditions, in the treatment of many such diseases as cancer, in the early mass detection of conditions such as pulmonary tuberculosis, and in the extension of medical knowledge.

Moreover, it appreciates fully the contribution of the radiological profession, through the International Commission on Radiological Protection* in recommending maximum permissible levels of irradiation. As regards those whose occupation exposes them to radiation, the establishment of these levels depends on the view that there are doses which, according to present knowledge, do not cause any appreciable body injury in the irradiated individuals; and also on the consideration that the number of people concerned is sufficiently small for the genetic repercussions upon the population as a whole to be slight. Whenever exposure of the whole population is involved, however, it is considered prudent to limit the dose of radiation received by germinal tissue from all artificial sources to an amount of the order of that received from the natural background radiation.

It appears most important therefore that medical irradiations of any form should be restricted to those which are of value and importance, either in investigation or in treatment, so that the irradiation of the population may be minimized without any impairment of the efficient medical use of radiation.

The Committee is consequently anxious to receive information through appropriate governmental channels as to the methods and the extent by which such economy in the medical use of radiation can be achieved, both by avoiding examinations which are not clearly indicated and by decreasing the exposure to radiation during examinations, particularly if the gonads, or the foetus during pregnancy lie in the direct beam of radiation. It seeks, in particular, to obtain information as to the reduction in radiation of the population which might be achieved by improvements in instrument design by fuller training of personnel, by local shielding of the gonads, by choosing appropriately between radiography and fluoroscopy, and by better administrative arrangements to avoid any necessary repetition of identical examinations.

The Committee also seeks the co-operation of the medical profession to make possible an estimate of the total radiation received by the germinal tissue of the population before and during the child-bearing age. It considers it to be essential that standardized methods of measurement, of types at present available, should be widely used to obtain this information and it emphasizes the value of adequate records, maintained by those using radiation medically, by the dental profession, and by the responsible organizations in allowing such radiation exposure to be evaluated. The Committee is convinced that information of this type will make it possible to decrease the total medical irradiation of the population while preserving and increasing the true value of the medical uses of radiation.

* See the report of the International Commission on Radiological Protection (published in the British Journal of Radiology—Supp. 6, of December 1954—in the *Journal français d'electro-radiologie*—No. 10, of October 1955—etc. and revised in 1956).

Executive Secretary of Association Serves Forty Years

ON JANUARY 7, 1957 our Executive Secretary, Mr. Stuart E. Womeldorph, completed forty years with the Association of Military Surgeons of the United States. The Executive Council of the Association at its meeting on January 10 voted that special recognition should be given Mr. Womeldorph by the presentation of an appropriate scroll for his devoted and continuous duty over those

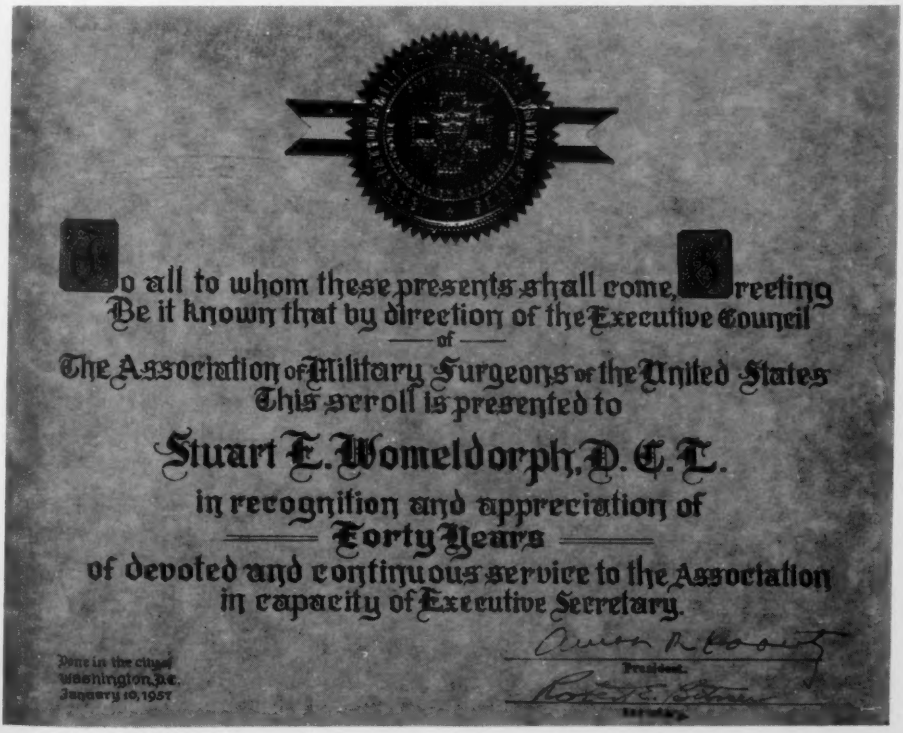
many years. A beautiful scroll was prepared and presented to Mr. Womeldorph by the President of the Association, Colonel Amos R. Koontz, MC, Md, NG. The pictures in this article record for the history of the Association this memorable event.

Stuart Early Womeldorph was born in Opequon, Virginia on June 27, 1890. He attended public schools in Virginia and in 1909 passed the State Teachers Examination.

In 1909 Mr. Womeldorph came to Washington where he was for two years a clerk in the Census Bureau. In 1912 he accepted an appointment in the field service for the Navy Department, and served at the Norfolk Navy Yard in this civilian capacity for some months. In 1913 he returned to Washington and was employed in the offices of the Washington Terminal Company until he joined the staff of our Association on January 7, 1917.

COL. AMOS R. KOONTZ, MC, Md. NG (President) (left), presents scroll to MR. STUART E. WOMELDORPH, Executive Secretary of the Association.

At the time of Mr. Womeldorph's joining the staff Colonel Munson was Secretary-Editor but because of his official duties on


To all to whom these presents shall come, Greeting
Be it known that by direction of the Executive Council
of
The Association of Military Surgeons of the United States
This scroll is presented to
Stuart E. Womeldorph, D. C. L.
in recognition and appreciation of
Forty Years
of devoted and continuous service to the Association
in capacity of Executive Secretary.
President.
Done in the city of Washington, D.C.
January 10, 1957

the Mexican border Colonel Hoff was acting in Washington for Colonel Munson.

Shortly after Mr. Womeldorph joined the Association the United States entered World War I. He declined a commission in the Sanitary Corps in order that he might continue his work for the Association because its Secretary, as well as Surgeon General Gorgas of the Army, felt that his service was needed by the Association.

In his spare time Mr. Womeldorph enrolled in law courses in universities in Washington and after much hard study he received several degrees, one of which was the Doctor of Civil Law in 1928.

In these many years our Executive Secretary has made many friends among distinguished military and civilian persons. He has attended more conventions than any member. He has many interesting stories to tell about the Association. Many have called him "Mr. Association" for he and he alone has had the opportunity to see the Association at close range over these forty years. The scroll which was presented is our attempt to convey our appreciation to him.

Around the World

(Ser. II, No. 7)

By

CLAUDIUS F. MAYER, M.D.

GREAT BRITAIN, a few months ago, published a pamphlet on the *hazards to men in ships lost at sea.* It contains a study of the Medical Research Council based upon the deposition made by men who survived the loss of their ships in the years 1940-1944. The study analyzes the records of 448 sinkings of mostly merchant ships, involving 27,000 crew persons shipwrecked. Sixty-eight percent of them survived, 26% lost their lives before reaching a lifecraft, and 6% died after reaching lifeboats or rafts. It is apparent that the loss of life after boarding the lifecraft was due to three main causes: 1) cold, 2) lack of fresh water, and 3) the drinking of seawater. The critical amount of fluid a man needs to save himself from dehydration is only 4 oz. daily. Food supply is not as important as fresh-water supply, and many men survived for long periods on as little as 300-500 calories a day.

The Serum Laboratories of the British Medical Research Council are setting up a *virus-production unit at Carshalton,* with the aid of some £50,000 from the (British) National Fund for *Poliomyelitis Research.* The Council explains the need for the new unit with the statement that there is still no evidence that the use of a Salk-type vaccine (i.e., killed virus) could entirely prevent poliomyelitis. Tests for early diagnosis, and the further experiments also, require large quantities of polio virus.

In Britain, the Advisory Council on Scientific Policy is concerned at present with two great problems: 1) the *inadequacy of the National Scientific Library service* in the country, and 2) *the population growth in tropical countries.* Both problems require additional manpower and financial support. But both money and men are lacking. As to the scientific reference service, it has been recognized that the present methods of librarians are obsolete and the information servite needs a thorough reform and modernization. It was planned to establish a future "National Scientific Lending Library," but the £2,500, which the British Government estimated to appropriate for starting it, shows a complete failure of appreciation and official understanding of the vital needs of science. The *problem of tropical population growth* could be approached in two ways: a) social research into the native family-life and b) researches into fertility and sterility in the tropics. While the sociological approach of the population problem had been already started upon a regional basis (e.g., in Jamaica), personnel and equipment are completely lacking to study the fertility of Man in the tropics.

In the French Medical Academy, two Algerians presented the re-edited text and the French translation of an interesting *10th century Arabic medical manuscript* which they found among the treasures in the library of the Escurial. It is the work of 'Aríb Ibn Sa'íd, of Córdoda, physician and secretary to two kings and later governor of the province of Osuma. The work deals with gynecological and obstetrical subjects, also with pediatrics which is quite unexpected in the medical literature of that era (The first book on pediatrics, Thomas Pharire's *Boke of Chyldren,* was published in 1545). The work was also presented in September at Madrid to the 15th International Congress of the History of Medicine.

On an island of *Venezia,* called Isola di San Giorgio Maggiore, there is the highly intellectual *Giorgio Cini Foundation.* This scientific corporation would invite representatives of various branches of arts, sciences,

and human thought for the discussion of fundamental problems of culture. The topic of one of the latest symposia of the Foundation was whether there is *any ultimate purpose in the world.* Of course, finalism has been an old topic of the philosophers since the times of Aristotle, and the idea of a purpose(the Greek τελος-telos) has had its ups and downs throughout the past 2,000 years of history. In our days, there is Matisse and a number of *neopositivistic and neo-existentialistic thinkers* who deny any logic in Nature's processes, and declare a total lack of coordination in the Universe. On the other hand, the group of philosophers of science who convened at Venezia believe that there is guidance in the Universe and in the Biosphere; that all evolution is toward a definite goal; and that all organisms have a determined function. The essential distinguishing mark of all vital phenomena is their purpose to preserve the individual and to perpetuate the species. The symposium called attention to a statement of Sherrington that, in spite of the enormous progress in neurophysiology, the problem of relationship between Brain and Thought is still at a stage where it had been in the era of Aristotle. (The biophilosophical discussions had been pre-published in the first issue of a new scientific magazine called *Quaderni di San Giorgio.*)

There are some 86 zoonotic diseases, i.e., diseases transmissible from animals to man, such a rabies, echinococcosis, bovine tuberculosis, etc. They are prevalent in many countries, causing a lot of trouble to public health authorities. Many of these diseases are also found in the Americas. The Pan American Sanitary Bureau, together with the WHO Regional Office and the Government of *Argentina,* recently reached an agreement for the *erection of a Panamerican Zoonosis Center* where personnel would be trained in the diagnosis and control of the diseases, and services would be provided (field and laboratory) to the participating governments. The new Center is located at Azul, a community about 180 miles south of Buenos Aires. It is hoped that, with the aid of the Center, many of the available remedies against zoonoses will be also applied more skillfully hereafter than before.

On the 6th of this month, (March), a new sovereign and independent state came into existence in West Africa. It is *GHANA,* formerly known as The Gold Coast, a colony of Great Britain. The territory of British Togoland also becomes a part of the new state.

Not far from the new West African state is *Yangambi* in the Belgian Congo, the headquarters of the National Institute for Agronomic Studies in the Congo. The institute is in fact an international organization in which many European and African governments, and the UNESCO also, participate. Though the major field of the institute is phytogeography and plant taxonomy, the planned *botanical atlas of Africa,* including vegetation maps on a scale of 1:5,000,000, will be of great interest to the food sciences and the pharmaceutical research alike. One of the great difficulties is to correlate the work done by different people whose research data are obscured under the veils of incoordinated nomenclatures.

The nutritional disease called *kwashiorkor* is not a new entity in the world. Under the term "cullabrilla" a Yucatan medical journal had already described it in 1908, and under the term *"Mehlnährschaden"* (nutritional damage by flour) Czerny and Keller had studied it in Europe as early as 1909. In Africa, it has been described as Nzadi, lupussu, m'bwaki, diboba, etc. The affection is universal:—it occurs also among the Eskimos. *In the Belgian Congo,* 10,604 cases of kwashiorkor were counted in 1954. It seems that, in addition to an absolute lack of protein, selective deficiency of some amino acids in the diet is also a factor in the development of the condition. Skimmed milk is held to be one of the best helps to the patients.

By the way! It is with some sadness to report that, soon hereafter, *Time in the Belgian Congo will be regulated* by an electronic

precision instrument, a quartz clock composed of three oscillators, with monthly deviation of less than one thousandth of a second. The complicated chronometric instruments of civilization will begin their service on the first of July, 1957, the first day of the new International Geophysical Year. This clock will be kept at the Lwiro center of the *Institute for Scientific Research in Central Africa.* This center in the Belgian Congo opened last July, and it is the principal station for medical zoology, nutritional, physicochemical and physical studies. Other branch centers of the institute also opened last year:—one at Mabali, for botany, climatology, and zoology; one at Elisabethville, for biology, while the branch centers at Uvira (for hydrobiology) and Astrida (for humanities) have been functioning since 1950.

Between 1908 and 1923, Lewis Wickes *Hine* (1874-1940), a sociologist and a pioneer in the field of *documentary photography,* worked as a special agent for the U. S. National Child Labor Committee. Many of his "photo stories" were published in *The Survey* magazine. His photographs record the *working conditions and the child labor* in the worsted mills of Maine, the shrimp canneries on the Gulf, in the cotton fields of Texas, in the coal mines of Pennsylvania, etc. The Prints and Photographs Division of the Library of Congress recently acquired a representative collection, including ca. 5,000 of these wonderful photographs, which had stirred people to the realization and the final elimination of the earlier abuses in the employment of children in America.

There are two research projects known to go on in the world which use *convict volunteers as experimental subjects.* One of these projects is in the United States where the Medical College of the University and the Sloan-Kettering Institute of New York City are *grafting live human cancer cells* into volunteer convicts of the Ohio State Penitentiary. This project started on 14 June 1956 when 14 volunteers were inoculated subcutaneously in each forearm with cancer cells, and two weeks later the area around the injection was removed from one forearm of each volunteer for histological study.—The other research project was started by the South African Nutritional Research Institute which investigates whether there were any *racial differences* in the efects of the *variation of dietary fat.* The volunteering was supposed to be without any special incentive. The ultimate goal of this project, which has now been going on for several months, is the clarification of the pathogenesis of coronary thrombosis.

The recent *Soviet brutality against small Hungary* has been condemned by *resolutions* of a number of European scientific, military and medical societies, and medical magazines. One of the Swiss regional societies was especially outraged by the news that Soviet troops had *attacked a hospital train of the Red Cross* which was functioning in Hungary. Such a blatant violation of international conventions is indeed a grave insult of the communists against Mankind and humanity (N.B. Similar resolutions were also adopted at the meetings of many American scientific bodies).

We had occasion to get *eyewitness account* to confirm the brutality of the communist secret police during the street fights in Budapest in the days of the Hungarian Fight for Freedom. A male nurse, who later escaped to Canada, reported that the secret police often stopped the ambulances he was driving, opened the door of the automobile, and once shot a wounded youngster in the head who was being transported to the hospital. The communists did not respect the Red Cross though it was eminently displayed on the top and the sides of ambulances. They robbed these cars of dressings and bandages. Other reliable sources revealed that at the present time most *Hungarian drugstores* are completely *without supplies* so that simple prescriptions for medicine cannot be filled. (The male nurse is one of the heroes who made a symbol out of the city of *Budapest, a shining symbol of freedom* admiringly held up to the world in

the inaugural address of President Eisenhower.)

The latest figures of the vital statistics of Poland, a country of 25 million inhabitants, show that about 150,000 *Poles* are *suffering from malignant tumors.* Organization against cancer in Poland is entrusted to the Oncological Institute at Warszawa. The institute has two branch offices in the Polish cities of Gliwice and Kraków, and several tumor centers in Danzig, Posnan and Breslau. There are also smaller tumor clinics for the detection of malignant growths which function in the same manner as our own clinics.

The coming of such report from Poland is a surprise since *in Russia* itself the *status of oncology* is rather neglected, according to that country's leading oncologist (Serebrov). Indeed, more tumor institutes and laboratories were in existence before the World War than now. The staff of the existing institutes is also drastically reduced. The USSR has no over-all oncological medical center, and everything is managed by the Academy of Sciences. The institutions are not provided with necessary hormone preparations, and their technical equipment is of exceptionally low standard. The methods of x-ray research are also poorly developed. Radiation therapy with gamma rays and radioisotopes is also difficult because there are no adequate dosimeters in Russia.

In contrast, there is much *building and construction activity in the medical field* reported from *Soviet Russia.* One must question the truthfulness of these reports. It is also possible that much of the construction remains on paper only. What might also happen we can conclude from the following criticism published in a Russian medical newspaper. The city of Losino-Petrovsk, near Moskva, was supposed to have a new 150-bed hospital. The building has been under construction since 1951, and opened recently. The hospital is, however, without a laundry, refrigerator, etc. Parts of the original building plan were omitted; thus, there is no wing for infectious diseases, and no outpatient department. The basement of the hospital is not equipped, and the elevator is not running. It is also a fact that many model hospitals in which provisions are made for central water supply are built in places where no water supply exists. The same situation prevails for sewerage and central heating.

There is more and more demand in *Russia for health resorts* and sanatoria, but the number of beds in these installations is rather limited. Administrative officers made a survey, however, and found that, *in the Caucasus area,* each sanatorium building had its own treatment rooms which were sometimes too many. Practically each individual building had been constructed as a separate unit, having its own electrocardiographs, microscopes, x-ray equipment, etc. (But how otherwise!) It seems that there is much more equipment than doctors to use them, and much of the *facilities remains unused,* partly because nobody understands how to repair scientific apparatus when it is out of order. Hence, in the future, these unused treatment rooms are planned to be converted into accommodations for patients in the health resorts, in Yessentuk, Piatigorsk, Zheleznovodsk, and other spas.

According to the report of a Soviet delegation which recently paid a visit to China there are a number of medical institutions where the *Chinese* can *receive advanced surgical service.* Intratracheal and local anesthesia is in the hand of experienced persons. Some of the Chinese surgeons acquired good name by their surgical skill in esophageal resections (In-kay U), cardiovascular surgery (Si-chan Lan), lung resections (Dia-sy Khuan), etc. Yet, the cardiovascular and thoracic surgeons do not have adequate equipment. There is also some shortage in radiopaque substances and in ganglioplegic drugs for hypothermia. Not so long ago, the oldest Chinese pharmacy, the Tunzhen-tan, in Peiping celebrated the 288th anniversary of its existence.

There was some apprehension and protest

among Australian physicians when the 1957 Australian National Research *Expedition to Mawson* advertised a vacancy for a medical officer and stated that *"Appendectomy essential prior to sailing."* As one of the protestants put it: "No person should be required as a condition of his employment to undergo an operation for the removal of an organ which is not in fact diseased, or the cause of disease." However, the intention of the advertisers had been ethical and proper:—the expedition wanted to select its doctor from applicants who had legitimately lost their appendices prior to the announcement.

Juvenile delinquency is world-wide, and suggestions for its remedy are welcome from any quarter. At the latest *Pan-African Conference on Juvenile Delinquency* a South-African delegate reported the case of a boy who became a chronic thief in spite of all treatments he was given at a psychiatric institute. Then, he was struck with paralysis. His aunt to whose care he was committed used *an old witchcraft remedy.* She covered the body of her nephew with mud from his mother's grave. Believing that, by means of the mud, his mother's spirit had taken possession of his body, the young man was cured both of his paralysis and his criminal tendencies!

An *English hospital* reported that it had been *losing its mice* ever since the acquisition of television sets. (*Post hoc, ergo propter hoc!*) Further inquiries revealed, however, that, at the same time when the murine mortality increased, the number of obscure dysentery cases also increased among the hospital's patients. Subsequent sarcastic comments remarked that the given constellation of facts would rather speak for the mental blindness and lack of imagination of the hospital bacteriologist than for a miraculous rodenticide power of television appliances! . . . *Multa paucis!*

MASS CASUALTIES—PRINCIPLES INVOLVED IN TREATMENT

The 190 page reprint of the text material which appeared in the April 1956 issue of MILITARY MEDICINE is still available. Single copies $1.50—special price for more than ten copies. Buckram—$3.00 per copy.

SUSTAINING MEMBERS

It is a privilege to list the firms who have joined The Association of Military Surgeons as Sustaining Members. We gratefully acknowledge their support.

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ASSOCIATION NOTES

Timely items of general interest are accepted for these columns. Deadline is 3rd of month preceding month of issue.

Department of Defense

Ass't Secretary (Health & Medical)—HON. FRANK B. BERRY, M.D.
Deputy Ass't Sec'y—HON. EDW. H. CUSHING, M.D.

SELECTIVE SERVICE

The Department of Defense has requested the Selective Service System to provide the Army with 14,000 men during March. The Navy, Marine Corps, and Air Force have not requested any men from the Selective Service System.

PASSING OF THE GRAY

Funerals at Arlington National Cemetery will soon be completely motorized if the Department of Defense has its way. The budget for the coming year has eliminated the item formerly carried for the horses that pull the caisson from the chapel to the grave. Many will lament this last stand of the horse in our military organization. Motorization is bound to come but we would like to see a postponement for a few more years as a token of regard for the older persons of the military establishment many of whom are now retired and many of whom are well along in years.

Army

Surgeon General—MAJ. GEN. SILAS B. HAYS
Deputy Surg. Gen.—MAJ. GEN. JAMES P. COONEY

INSPECTOR GENERAL, SGO

Colonel James P. Pappas, MC, was recently named Inspector General for the Office of the Surgeon General.

A graduate from Tufts University Medical School in 1934, he entered the Army in 1935 and has seen service in many stations. In 1952 he received his Master of Public Health degree from Harvard School of Public Health. In 1955 he graduated from the Army War College and since that time he has served as Chief of the Environmental Hygiene Branch and Chief of the Civil Public Health Branch of the Preventive Medicine Division, Office of the Surgeon General.

SGO ASSIGNMENT

Lt. Col. Samuel C. Dews has been assigned as Chief of the Entomology Section, Environmental Hygiene Branch, Preventive Medicine Division, Office of the Surgeon General. That section formulates policies, prepares directives, and furnishes technical advice on all phases of medical entomology, plans and observes research and development projects for insect and rodent control.

Lt. Col. Peter M. Margetis, DC, has been appointed Chief of the Dental Research Branch of the Research and Development Division Office of the Surgeon General.

Major John R. Williams has been appointed Procedures Control Officer, Directives and Policies Branch, Medical Plans and Operations Division, Surgeon General's Office.

Capt. Gerald W. Dundas has been assigned to the Operations Branch of the Medical Plans and Operations Division of the Office of the Surgeon General.

ON PERSONNEL ASSIGNMENT

Col. Joseph H. McNinch, Chief Surgeon, U. S. Army Forces in the Far East, recently completed a nineteen-month tour as Chief, Personnel Division of the Office of the Surgeon General. On leaving that assignment he had this to say: ". . . I wish that every Army Medical Service officer could have a similar detail as part of his or her career. It is the best method I know for introducing the medical service officer to the importance of clear communication lines between himself and those upon whom he depends to carry out his health objectives."

EDUCATORS ASSEMBLE IN SGO

About eight months ago, fourteen consultants began their evaluation of the intern and resident training given in the Army's teaching hospitals. Their findings were reported to the Surgeon General on January 29 in a four-hour session.

Colonel Byron I. Steger, MC, Chief, Educational and Training Division, opened the session with a report on the present status of the Army Medical Service graduate professional education programs. The reports submitted by the consultants were very complimentary about the Army internship and residency program.

TO SPEAK TO INTERNATIONAL DENTAL CONGRESS

Maj. Gen. James M. Epperly, Chief of the Army Dental Corps, has accepted an invitation to participate in the program of the XIIth International Dental Congress to be held in Rome, Italy, by the Federation of Dentaire Internationale September 7-14, 1957. He is a member of the Dentaire Internationale which conducts the congress every five years with an estimated representation of 230,000 dentists practicing in 42 nations.

The United States Army will also be represented at the sessions by Col. H. Beecher Dierdorff, DC, presently the Dental Surgeon for the U. S. Forces in Europe and is planning an exhibit portraying Army dental advances for display at the congress.

DIETITIAN TO EUROPE

Maj. Barbara Ryan, AMSC, now on duty as hospital dietitian in the Food Service Section, Medical Plans and Operations Division, Surgeon General's Office has been named to succeed Maj. Nancy Houston, AMSC, as consultant on dietetic and food service matters to the Surgeon, Headquarters, U. S. Forces, Europe. She plans to leave for Germany on June 3.

APPLICANTS FOR PREVENTIVE MEDICINE COURSE

Applications are being accepted for the Preventive Medicine Course (Course 8-0-37) to be given at the Walter Reed Institute of Research, Washington, D.C., beginning September 3, 1957.

Regular Army Medical Corps officers or qualified physicians who accept commissions in the Regular Army are eligible for the course. Qualified officers from the Navy, Air Force, Public Health Service, and representatives of other governmental agencies may be admitted by mutual agreement between the Army Surgeon General and the Chief of the government agency concerned.

Civilian physicians may apply in writing to the Surgeon General, U. S. Army, Washington 25, D.C. Those in the military service should apply through regular channels.

This year's course which will be 48 weeks will be under the direction of Col. Philip R. Beckjord, MC, Director of the Division of Preventive Medicine, Walter Reed Institute of Research.

PLAQUE PRESENTED

The Disabled American Veterans expressed the appreciation of the organization for Brooke Army Medical Center's services recently when Major General Melvin J. Maas, U. S. Marine Corps (Ret.), former national commander of the DAV, presented a bronze plaque to Maj. General William E. Shambora, Commander of the Center.

MAJ. GENERAL MAAS presents plaque to MAJ. GENERAL SHAMBORA.

PERFECT RECORD

Brooke Army Medical Center had a perfect traffic fatality record during 1956. Not a single military or civilian personnel of the nearly 12,000 at the medical center was involved in a fatal accident.

And much of the credit for this record goes to the all-out safety indoctrination program conducted throughout the year.

To carry the record a bit further, the medical center's fatality record goes back to the fall of 1955.

Major Varley F. Broe, Director of the Security and Intelligence Division, who is responsible for the safety program, credits its success to the 12-month campaign to reduce traffic accidents and fatalities. Special lectures on highway safety are required listening for all military personnel before holidays. State and local police officers are called in to help with safety lectures and demonstrations. A special driving school, is conducted throughout the year under the direction of Captains John D. Redding and Francis W. Harris of the Motor Transportation Branch. All military personnel involved in moving traffic violations are required to attend special safety and driving classes during off-duty time.

Major Broe estimated that medical center personnel drove more than 55 million passenger miles in private vehicles during the year. This is in addition to more than a million miles driven in official Army vehicles. National safety authorities report that more than 700 traffic fatalities occurred last year in U. S. cities of about the same population as the medical center.

ASSIGNMENT AMSS

Col. Laurence A. Potter, former Chief of Plans in the Surgeon's Office at Headquarters, U. S. Army in Europe, is the new Director of the Department of Military Sciences at the Army Medical Service School, Fort Sam Houston, Texas.

Colonel Potter's Army career qualifies him exceptionally well for his present position. During World War II he served in the Pacific Theater, where he was Surgeon of the Attu Task Force, Surgeon of the 7th Division in the Kwajalein Operation, and later with the Philippine Island liberation forces and on Okinawa. In 1945-46 he was Surgeon of the United States Forces in Korea while with the 24th Corps.

EXCHANGING IDEAS AT AMSS

Sixty-five officers from allied nations have found real friendship at the Army Medical Service School, where they are attending advanced courses.

When the students arrived at Brooke Army Medical Center they were introduced to a group of senior U. S. Army officers who are assisting the allied nationals, many of whom speak no English, in becoming familiar with American customs and beliefs.

Each U. S. officer sponsors three or four visiting students. Home visits give a picture of American family life and an opportunity for exchange of views on a personal basis. Tours and special trips are planned by each sponsor. Sponsors also give

personal assistance in any problems confronting the visitors.

The allied officer students are scheduled to study at the school through April. They represent Nationalist China, Norway, Pakistan, Venezuela, Vietnam, Korea, Turkey, Thailand, Indonesia, Japan, and the Philippine Islands.

SURGICAL HOSPITAL ACTIVATED

The 45th Surgical Hospital, the first unit of its type to train at the Brooke Army Medical Center, has been activated and attached to the 67th Medical Group as announced by Major General William E. Shambora, the medical center commander.

Formerly the Mobile Army Surgical Hospital, or MASH as it was commonly known, units of this type came into prominence during the Korean conflict and since that time have become an important link in the life-saving Army chain of evacuation. The unit is designed for complete mobility. This enables the unit to be placed relatively close to the front lines to provide quickly accessible surgical treatment for casualties whose lives depend on a minimium time lapse before treatment.

It is the installation closest to the front lines which provides definitive treatment for combat casualties whose injuries demand immediate surgical attention.

Commanding officer of the new unit is Major Homer R. Empey.

HELICOPTER CONVERSION

Two helicopter units at Brooke Army Medical Center have completed their conversion from the small H-13 aircraft to the larger H-19, Major General William E. Shambora, the medical center commander, stated recently.

The 82nd and 57th Helicopter Detachments, units of the 67th Medical Group, tripled their patient load capacity with the aquisition of the new aircraft.

"These new aircraft will increase considerably the ability of our two units to move patients, because of their longer range and greater capacity. Also, the ability of an aidman to fly with the patients is paramount, since the mission of helicopter ambulances is directed entirely toward the benefit of the sick and wounded, and the aircraft are operated by Medical Service personnel," Colonel Joe A. Bain, commanding officer of the 67th Group said. The smaller H-13, has a capacity of two patients and they must be carried outside the cockpit on litter "walls." The H-19 has an enclosed cargo compartment with a capacity of six litter patients and one medical attendant, who can render treatment en route.

HELIPORT

Tripler Army Hospital recently inaugurated its new heliport when Brig. General John F. Bohlender made the inaugural landing in an Army copter piloted by Lt. Billy R. Taylor of the 25th Division.

The concrete landing area will be coated with luminous paint and beaded with glass reflectors for night landing.

PODIATRIST

Second Lieutenant John L. Charlton, Jr., is the first podiatrist to be commissioned in the Army. This took place recently when the then Sergeant Charlton, on duty at the U. S. Army Dispensary in the Pentagon, was given his bar and assigned to duty at Walter Reed Army Hospital, Washington, D.C.

The Navy has commissioned podiatrists for about two years.

SLEEP DEPRIVATION EXPERIMENT

Five volunteers from the 13th Field Hospital, Fort Belvoir, Va., recently participated in an experiment in which they lost 98 hours of sleep. The experiment was conducted by the staff of the Walter Reed Army Institute of Research at the Forest Glen section of the Walter Reed Army Medical Center, Washington, D.C.

The test was to find out what sleep really is, and what effects its deprivation has on human physiology. In order to arrive at the

answers to these questions certain physical and psychological tests were administered. Blood samples were taken periodically to measure the level of blood hormones, and electroencephalograms were performed throughout the testing period. Included among the psychological tests which will serve to show the effect of lack of sleep on mental alertness and reaction were tone discrimination, communications, and continuous vigilance tasks.

CAUSE OF DEATHS

About 75 percent of all deaths in the Army are due to injury and half of that number are due to automobile injuries according to Lt. Colonel Herschel E. Griffin, MC, Office of the Surgeon General. This statement was made at the recent Conference of Army Preventive Medicine and Laboratory Officers held at the Walter Reed Army Institute of Research, Washington, D.C.

REPORT AVAILABLE

Medical Statistics of the United States Army, 1954 is a report presenting detailed statistics on the incidence of disease and injury, mortality, hospitalization, medical resources and similar subjects dealing with the health of Army troops.

A limited number of copies are available for interested workers in the health field. Address: Office of the Surgeon General of the Army, Attn: MEDCS, Washington 25, D.C.

MEDICAL DEPOT

The Advance Section of the U. S. Army Communications Zone recently opened its first medical depot at Orleans, France. The depot contains over 114,000 square feet of heated warehouse space as well as 11,000 square feet of office space, and 34,000 square feet of shop area. The depot is expected to become operational on or before July 1, 1957. The Vitry-Le-Francois 500 bed hospital is adjacent to the medical depot.

RESUSCITATOR

An artificial respiration device which aid men can use to treat nerve-gas casualties during a gas attack is being developed by the Army Chemical Corps in collaboration with the Surgeon General of the Army for use by the medical services.

The device also can be used to give artificial respiration in drowning cases, electrical shock, suffocation, and similar accidents.

This is the first device that would permit artificial respiration in contaminated air. It is a mask-to-mask resuscitator, utilizing the power developed by the aid man's breathing to supply purified air to the casualty's lungs even though treatment is being given in a toxic atmosphere.

WATER PURIFICATION PLANT

A "packaged water plant" capable of meeting the emergency water needs of 50,000 people has recently been developed at Fort Belvoir, Virginia. The plant can purify water up to rates of 12,000 gallons per hour and can be operated by one man.

Polluted water can be pumped into the unit, chemically and physically treated, and discharged as potable water in about 20 minutes.

This unit is housed in a 40×40 foot building and is the largest in the family of water purifications units developed by the Sanitary Engineering Branch to meet field requirements.

There is also a trailer-mounted unit rated at 600 gallons per hour and a truck and skid-mounted unit which can purify 1500 and 3000 gallons of water per hour.

Navy

Surgeon General—REAR ADM. BARTHOLOMEW W. HOGAN

Deputy Surgeon General—REAR ADMIRAL BRUCE E. BRADLEY

SURGEON GENERAL HONORED

Rear Admiral Bartholomew W. Hogan, Surgeon General of the Navy, was presented

with the "Medaille de vermeil," the Medal of Honor of the French Navy Medical Service recently. The Medal was presented by Rear Admiral Louis Mornu, Naval Attache for the French Embassy, Washington, D.C., in official recognition for the distinguished services Admiral Hogan rendered to the French Navy Medical Corps in medical matters.

ASSIGNMENT BUMED

Cdr. Armand P. Chartier, MSC, has recently been assigned as Head of the Mobilization Planning Section of the Planning and Logistics Division, Bureau of Medicine and Surgery, Washington, D.C.

He replaced Cdr. Paul L. Austin, MSC, who was transferred to the U. S. Naval Hospital, St. Albans, L.I., N.Y. as Administrative Officer.

HEADS PHARMACY SECTION

LCdr. Solomon C. Pflag, MSC, recently assumed his duties as Head of the Pharmacy Section of the Professional Division of the Bureau of Medicine and Surgery. He succeeded LCdr. Kenneth E. Bechtloff, MSC, who has been assigned duty at Navy Section of the Medical Military Supply Agency, Louisville, Ky.

INSTRUCTOR IN MEDICINE

Cdr. Robert L. Fleck, MC, Chief, Internal Medicine Division, U. S. Naval Dispensary, Washington, D.C., was recently elected to the post of Clinical Instructor in Medicine of the Georgetown University School of Medicine by the Executive Faculty of that University.

RESERVE ACTIVE DUTY BILLETS AVAILABLE

Medical Department officers in certain grades and categories may obtain tours of extended active duty with active duty agreements under the revised voluntary recall program.

Medical and Dental Corps (2105 and 2205)—all grades. Criteria for recall to active duty will be based on relative age, professional qualifications and current service needs.

Medical Service Corps (2305)—grades up to and including lieutenants with date of rank of 1 May, 1952, whose specialties are entomology, parasitology, Public Health (Sanitation), physical therapy, occupational therapy and dietetics.

Nurse Corps (2905)—lieutenants and junior. Applications for extended active duty should be submitted in letter form, addressed to the Chief of Naval Personnel (Attn: Pers B115) and forwarded via the respective district commandant or the Chief of Naval Air Reserve Training, as appropriate. The letter should indicate the date available for active duty and the amount of advance notification desired. Normal processing time for applications is one month; however, if a National Agency Check is needed, processing time is three months. Preference for type and location of duty may also be included and will be given consideration.

NEW RESERVE TRAINING COMMAND

A new activity, the U. S. Naval Reserve Training Command, located at Omaha, Nebr., was recently established to supervise the training programs of all Naval Reservists except "Air" Reservists. The staff medical officer is Capt. James S. Webb, MC, USNR, whose address is: U. S. Naval Training Command, 30 and Fort Sts., Omaha 11, Nebr.

SOCIAL SECURITY CARDS

All Reservists who report for active duty must have a Social Security card in their possession so that wage credits and deductions may be credited to their accounts. Active duty personnel were recently issued such cards in compliance with The Servicemen's and Veterans' Survivor Benefits Act.

RETIRED

Capt. Kenneth O. Turner, DC, and Capt. Alvin H. Grunewald, DC, were retired from the Navy on February 1.

The following Medical Service Corps officers were recently retired: Commanders Herman H. Burton and Kenneth L. Price; Lieutenant Commanders Henry Kibsgaard, John M. Mickey, Ernest E. Ozburn, Herman O. Sutton, and George C. Woelfel; and Lt. Armand W. Roy.

RELEASED FROM ACTIVE DUTY

The following Medical Service Corps officers were recently released from active duty, having been previously retired: Commanders Clifford Lawson, Clay E. Pittser, Max E. Zimmerman; Lieutenant Commanders Thurman G. Johnson and Herndon T. Sessions; and Lieutenant Walter K. Patton.

REFUELING OF NAUTILUS

The *USS Nautilus* will be refueled this spring for the first time. This atomic ship first got underway on nuclear power on January 17, 1955 and since then has gone 55,000 miles from power generated by her reactor.

Air Force

Surgeon General—MAJ. GEN. DAN C. OGLE
Deputy Surg. Gen.—MAJ. GEN. W. H. POWELL, JR.

ASSIGNMENT

Lt. Colonel Albert A. Taylor, USAF (VC), has been assigned to the Headquarters Air Research and Development Command, Baltimore, Md. His duties are with the Aeromedical Branch of the Human Factors Division. He has been a project scientist involved in research and development problems of inflight feeding, with the Aeromedical Laboratory of the Wright Air Development Center, Wright-Patterson Air Force Base, Ohio. Prior to that assignment he attended Harvard University and received a Master's degree in Public Health.

METAL HIP JOINT

A new type metal hip joint has been devised by Col. Harry A. Gorman, USAF (VC). Although used for several years in the treatment of dogs, the first application to man was made recently by Dr. Judson Wilson, Associate Professor of Orthopedic Surgery at the University Hospital, Ohio State University Medical Center.

Public Health Service

Surgeon General—LEROY E. BURNEY, M.D.
Deputy Surg. Gen.—W. PALMER DEARING, M.D.

PRESENTS CITATION

Assistant Surgeon General Otis L. Anderson presented The Special Citation of the Public Health Service for vessel sanitation to the Grace Line aboard a ship of the line in New York on February 7.

The Special Citation recognizes the efforts of the company in bringing each of its 26 ships to a rating of 95 or better on an official Public Health Service inspection involving 166 separate items of sanitary construction and maintenance.

EXAMINATION SCHEDULED

Health Educators Examination for the Regular Corps of the Public Health Service will be held in a number of places throughout the country on May 7, 8, 9, and 10. Applications must reach the Surgeon General, U. S. Public Health Service, Washington 25, D.C., *no later than March 29, 1957.*

Candidates must be U. S. citizens, at least 21 years of age, and possess a Master's Degree from an accredited graduate school of public health. The entrance examination will include an oral interview, physical examination, and written objective tests covering the professional field.

ASSIGNMENTS

Dr. Victor H. Haas, Director of the National Institute of Allergy and Infectious Diseases will return to laboratory research at that Institute in the field of microbiology, effective April.

Dr. Justin M. Andrews, Associate Chief

for Program in the Bureau of State Services, Public Health Service, will succeed Dr. Haas as Director.

HEART DISEASE DRUGS

In order to evaluate the effectiveness of drugs in treating heart disease a recent grant was made by the Public Health Service to Dr. Alan E. Treloar, Director of Research of the American Hospital Association.

A Central Staff located in Chicago will include a clinician and biostatistician who will coordinate the activities of the project and provide valuable administrative and biostatistical services for participating investigators.

BUDGET

The Department of Health, Education, and Welfare budget increase this year is 23% over that of last year. This includes a 6% increase for the Public Health Service. Last year there was a call for a 10% increase but before the appropriation bills got through Congress there was about a 20% increase.

There are a number of projects calling for an increase, such as teaching facilities, Food and Drug enforcement, Chronic Disease and Health of the Aged, the Hill-Burton Hospital Grants, and Air, and Water Pollution Control.

HOXSEY CURE AGAIN

That the Public may know, the Food and Drug Administration of the Department of Health, Education, and Welfare is circularizing, with the cooperation of the Postoffice Department, a warning against the Hoxsey Cancer Treatment.

Declared to be worthless, the treatment costs $400, plus $60 in additional fees. Anyone planning to try the treatment is advised to contact the Food and Drug Administration who will give them facts.

WORLD HEALTH DAY

April 7 has been designated as World Health Day and on that day the United States will join with other nations in programs dealing with nutrition, food production and distribution, and food protection and sanitation.

Veterans Administration

Chief Medical Director—WILLIAM S. MIDDLETON, M.D.

Deputy Chief Med. Dir.—R. A. WOLFORD, M.D.

RESEARCH PHYSICIANS

Full-time research positions in the Veterans Administration were recently established for doctors. They will be known as clinical investigators according to Dr. J. C. Nunemaker, Director of Education Service, Veterans Administration.

Each clinical investigator will have research as his primary responsibility and will spend at least three-fourths of his work-

NATIONAL INSTITUTES OF HEALTH BUDGETS FOR 1957 AND 1958

	1957	1958
General research and services, NIH	$12,122,000	$14,026,000
National Cancer Institute	48,432,000	46,902,000
National Institute of Mental Health	35,197,000	35,217,000
National Heart Institute	33,396,000	33,436,000
National Institute of Dental Research	6,026,000	6,430,000
National Institute of Arthritis and Metabolic Diseases	15,885,000	17,885,000
National Institute of Allergy and Infectious Diseases	13,299,000	17,400,000
National Institute of Neurological Diseases and Blindness	18,650,000	18,887,000

DIPHTHERIA

Outbreaks of diphtheria occurring in the country point the need for emphasis of vaccination against that disease. The means are at hand to prevent this disease and the public should be re-educated to this need.

ing time in it. He will have as his advisor an outstanding representative of his special field of medicine. On January 1, 1957, nine such clinical investigators were appointed and it is expected that others will be appointed on July 1.

ASSIGNMENTS

David Anton, who has been Ass't. Manager of the Veterans Administration Hospital, New York City, has been appointed manager of the VA hospital at Castle Point, N.Y.

Dr. James B. Chandler, Director of Professional Services at the Veterans Administration hospital in Fayetteville, N.C., has been appointed manager of the VA hospital at Marlin, Texas. He succeeds Dr. Clarence R. Miller, who will retire January 31.

Dr. Paul L. Eisele, manager of the Veterans Administration hospital in Waukesha, Wisc., has been appointed manager of the VA hospital in Albuquerque, N.M. He succeeded David K. Dalager who retired February 28.

Dr. Earl C. Gluckman who has been Director of Professional Services at the Veterans Administration Hospital, Bronx, N.Y., has been appointed manager of the VA hospital at Coral Gables, Fla.

Dr. Harold F. Machlan who was manager at the Coral Gables Veterans Administration Hospital retired February 28.

VETERAN POPULATION

The Veteran Population in civil life totaled 22,564,000 at the end of November 1956. Of this number there were 3,025,000 from World War I.

The average daily patient load of veterans in hospitals was 115,104 in November 1956. Of these 112,056 were in VA hospitals.

Miscellaneous

ANOTHER CABINET OFFICE?

A bill has been introduced in Congress to make Federal Civil Defense Administration a cabinet-rank department. With the increased range of missiles, the development of atomic warheads for these missiles, and the aggressive actions of many nations to extend their borders, along with the ever existing threat of communism in this world, the defense of our country within its very limits is gaining in importance. There are those that feel that a Department of Civil Defense is a "must" for our country.

SOCIAL SECURITY

The first payment for disabled persons over 18 years of age as provided in a recent amendment to the Social Security law has been made to a person crippled by cerebral palsy.

The father of this person died when he was 22 years of age. Since this person is unable to work provision for his care is made by a monthly check of $132.80 for mother and son so long as circumstances remain the same.

Under the old law benefits ceased at age 18. More than 20,000 disabled sons and daughters of qualified workers are believed to be eligible for these benefits during 1957. They may receive benefits back to January 1957, if they apply through their local social security office before the end of January 1958. After this date, benefits will not be paid retroactively for more than twelve months.

PI ASSOC. MILITARY SURGEONS

The Philippine Association of Military Surgeons, which was founded in 1953, held its first general session and scientific meeting in Manila on January 23, 24, and 25.

Col. James W. Humphreys, Jr., USAF (MC), Surgeon of the Thirteenth Air Force, represented the Association of Military Surgeons of the United States, and presented the congratulations of our Association.

The following officers of the U. S. Armed Forces were made Honorary Members of the Philippine Association: Colonels James W. Humphreys, Jr., USAF (MC) and Fred C. Dye, USAF (MC); Commander William G. Krech, MC, USN; Major Anthony J. Puglisi, USAF (MC); and Lt. E. F. Dougherty, MC, USN.

GP ASSEMBLY

The Ninth Annual Scientific Assembly of the American Academy of General Practice will meet in the Kiel Auditorium, St. Louis, Mo., March 25-28.

OPHTHALMOLOGY MEETING

The Fourth Interim Congress of the Pan American Association of Ophthalmology will be held at Hotel Statler, New York, April 7-10. This will be a joint session with the National Society for the Prevention of Blindness. Further information may be obtained from Dr. Frank H. Constantine, 30 W. 59th St., New York 19, N.Y.

VD SYMPOSIUM

The eighth Annual Symposium on Recent Advances in the Study of Venereal Diseases will be held in the auditorium of the Department of Health, Education, and Welfare, Washington, D.C., on April 24-25, 1957.

The sessions are open to all interested physicians and workers in allied professions. Hundreds of participants from all parts of the country, including many outstanding authorities on venereal disease, attend annually to exchange the latest available information.

BAHAMA MEDICAL CONFERENCE

The Bahama Branch of the British Medical Association has announced a Medical Conference, April 23-30th. Special hotel rates have been announced. Further information may be obtained by writing Dr. B. L. Frank, P. O. Box 148, British Colonial Hotel, Nassau, Bahamas.

POLIOMYELITIS CONFERENCE

The Fourth International Poliomyelitis Conference will be held in Geneva, Switzerland, July 8-12, 1957. Registration should be accomplished by April 1 by adressing the Secretariat, Hotel du Rhone, Geneva.

POSTGRADUATE COURSES

Two courses in cardiology for general physicians and internists will be conducted at New York University Post-Graduate Medical School—one part-time course, April 11-May 23; the other full-time course, May 6-24.

A course on the Orthopedic Aspects of the Treatment of Rheumatic Disorders will be held March 19-April 2.

Further details of these course may be had by writing: The Dean, New York University Post-Graduate Medical School, 550 First Ave., New York 16, N.Y.

SECURITIES DIARY

A simplified record for keeping account of transactions of stocks, bonds, and mutual funds is provided in the Securities Diary which is a bound book for sale at the price of $2.00 and procured by addressing P.O. Box 166, Arlington 10, Virginia.

BOOK AVAILABLE

Accepted Dental Remedies, 1957 edition, is now available from the American Dental Association (Order Dept.), 222 E. Superior St., Chicago 11, Ill. The price is $2.00.

BOOKLET

How to Avoid Financial Tangles is an excellent booklet designed to assist individuals in the management of personal financial matters. It is well worth the $1.00. Available from: American Institute for Economic Research, Great Barrington, Mass.

HEART BOOKLET AVAILABLE

Prevention of Your Heart Death is a 30 page, copyrighted booklet available from Broad's Book Store, 18 North Second St., Yakima, Wash., at the price of $1.50 per copy.

WHO PUBLICATIONS

Water Sanitation Bull. Vol. 14, No. 5-6	$4.00
Rabies, BCG, Cholera Bul. Vol. 14, No. 4	2.00
Insecticides Tech. Report No. 110	.60
Hazards of Pesticides Tech. Report No. 114	.60
Trachoma Control; Drug Addiction Chronicle Vol. 10, No. 8	.30
Nurses-Education and Role in Health Prog. Chronicle Vol. 10, No. 7	.30
Tuberculosis Control Tech. Report No. 112	.30

Any of above may be obtained from the Columbia University Press, IDS, 2960 Broadway, New York 27, N.Y.

SOMETHING NEW

A newly designed set for the collection of whole blood, and intended for disposal after use, has been introduced. The set is unique in having as an integral part of the bottle needle hub an exclusive Valve flow regulator, which can be adjusted by a simple thumb movement to regulate the flow according to the rate of vacuum. This minimizes hemolysis, reduces the danger of vein collapse, and improves donor comfort by permitting precise control of the flow rate at all stages of the donation.

A Non-adhering Sterile Dressing, that prevents maceration, and is porous is now available. The feature of this dressing is that it provides maximal drainage while avoiding adherence to the wound. It is said to be excellent for burns, skin grafts, plastic surgery, colostomies, open ulcers, and cases where packing is needed.

WELFARE STATE

It doesn't take many liberal helpings of something-for-nothing to destroy the average person's taste foı work.—*Grit.*

AMERICA

When people start waiting to *get out* of this country instead of waiting to *get in*—we can start worrying about our system. *Bradenton* (Fla.) *Herald.*

MIND

After all, the greatest human power in the world today is not the atomic bomb. The human mind that conceived the bomb is a greater power by far.—Robert Gordon Sproul, *Science Digest.*

NATIONAL DEBT

The Federal Government this year is paying a record $7.1 billion just to carry the national debt. The present cost of carrying the debt is higher than the entire cost of Federal Government in 1938, and more than twice as high as the total cost in the late 1920s.—*Survey Bulletin.*

GENETICS

"Reproduction of the automobile has the peculiar feature that the offspring is always six inches longer, three inches wider, 10 per cent more powerful and 20 per cent shinier than its parent." DR. GLENN SEABORG, Nobel-Prize Chemist.

PROPOSED CHANGE TO BY-LAWS OF THE ASSOCIATION

The Executive Council of the Association of Military Surgeons proposes a change in the By-Laws of the Association. This change will be voted on at the Business Meeting of the Association to be held during the 64th Annual Convention, Hotel Statler, Washington, D.C., October 28-30, 1957.

Paragraph 5, Article VI, Section 3.

Present reading: "The accounts of the Secretary shall be audited by *an officer of the Finance Department of the Army or of the Bureau of Supplies and Accounts of the Navy, or* a certified public accountant as soon as possible after the end of the fiscal year (*September 30*) and at such other times as the Executive Council may require."

Proposed reading: The accounts of the Secretary shall be audited by a certified public accountant as soon as possible after the end of the fiscal year (June 30) or at such other times as the Executive Council may require.

Discussion: The services of a certified public accountant have been used for some years. It is questionable whether the military services would provide the necessary personnel to audit the funds of the Association. The change of the fiscal year from September 30 to June 30 is advisable from an administrative standpoint since the September date does not allow sufficient time for an audit and the preparation of a report by the Secretary prior to the annual convention which is held in October or November.

The Sir Henry Wellcome Medal and Prize

COMPETITION FOR 1957

THE competition is open to all medical department officers, former such officers, of the Army, Navy, Air Force, Public Health Service, Veterans Administration, The National Guard and the Reserves of the United States, commissioned officers of foreign military services, and all members of the Association, except that no person shall be eligible for a second award of this medal and prize and no paper previously published will be accepted.

The award for 1957, a medal, a scroll, and a cash prize of $500, will be given for the paper selected by a committee composed of the Association's vice-presidents which reports on the most useful original investigation in the field of military medicine. The widest latitude is given this competition, so that it may be open to all components of the membership of the Association. Appropriate subjects may be found in the theory and practice of medicine, dentistry, veterinary medicine, nursing and sanitation. The material presented may be the result of laboratory work or of field experience. Certain weight will be given to the amount and quality of the original work involved, but relative value to military medicine as a whole will be the determining factor.

Each competitor must furnish six copies of his paper which must not be signed with the true name of the author, but are to be identified by a ***nom de plume*** or distinctive device. These must be forwarded to the Secretary of the Association of Military Surgeons of the United States, Suite 718, 1726 Eye St. N.W., Washington 6, D.C., so as to arrive at a date not later than 1 July 1957, and must be accompanied by a sealed envelope marked on the outside with the fictitious name or device assumed by the writer and enclosing his true name, title and address. The length of the essays is fixed between a maximum of 10,000 words and a minimum of 3000 words. After the winning paper has been selected the envelope accompanying the winning essay or report will be opened by the Secretary of the Association and the name of the successful contestant announced by him. The winning essay or report becomes the property of the Association, and will be published in MILITARY MEDICINE. Should the Board of Award see fit to designate any paper for "first honorable mention" the Executive Council may award the writer life membership in The Association of Military Surgeons, and his essay will then also become the property of the Association.

BOOK REVIEWS

CHANGING CONCEPTS OF PSYCHOANALYTIC MEDICINE. Proceedings. Edited by Sandor Rado, M.D., D.Pol. Sc., Clinical Professor of Psychiatry; Director, Psychoanalytic Clinic for Training and Research, College of Physicians and Surgeons, Columbia University; and George E. Daniels, M.D., Associate Director, Psychoanalytic Clinic. 248 pages. Grune & Stratton, New Rork and London. 1956. Price $6.75.

This book consists of the papers presented at the Decennial Celebration of the Columbia University Psychoanalytic Clinic held on March 19 and 20, 1955.

The first two papers give the history and difficulties encountered during the process of establishing the clinic. These difficulties were, in part, centered around the long isolation from the medical field of classical psychoanalysis. The Clinic fought "not for a new doctrine but for an old freedom, the freedom of unhampered inquiry."

The other papers are arranged in six groups. There is an excellent contribution on the basic theory of adaptational psychodynamics, including an article on brain physiology. This is followed by papers describing the Clinic's therapeutic activities and outlining the adaptational development of the methods of treatment.

The fourth group is devoted to child psychiatry and the fifth to the work of the Clinic.

The final group is a remarkably lucid report on multidisciplinary research in psychiatry undertaken at the Tulane University School of Medicine on schizophrenia. This group also includes a preliminary report on the clinical study of schizophrenia undertaken at the Columbia Clinic.

This book is a very significant contribution to psychiatry of the present day. It gives a remarkably understandable account of the recent thinking and advances in psychodynamics with a historical perspective. The book justifies the hope that the field of theory in psychodynamics is becoming more and more a science rather than a "group of battling schools and sects."

The field of clinical psychiatry is remarkably well covered, especially schizophrenia. Many facets of the most recent research work on the schizophrenia problem are ably presented.

This book is essential for every psychiatrist. It is so lucidly written that physicians, social workers, and psychologists will find it of great value.

COL. JOHN CHORNYAK, MC, USAR

PSYCHOPATHY AND DELINQUENCY. By William McCord, Ph.D., Instructor in Social Psychology and General Education, Harvard University; and Joan McCord, Ed.M. Research Assistant, Laboratory of Human Development, Harvard University. 230 pages. Grune & Stratton, Inc., New York and London. 1956. Price $6.50.

The Psychopathic Personality has always been a problem for the administrator, and every person who has had anything to do with the military has found individuals who do not conform to regulations. A high percentage of all discipline cases is made up of this type of individuals. Although this syndrome has been recognized for a good many years, there is still much confusion in psychiatric circles as to actually what constitutes the Psychopathic Personality. This book reviews much of the work that has been done on this subject and clearly defines what is meant by the Psychopathic Personality.

"The psychopath is asocial. His conduct often brings him into conflict with society. The psychopath is driven by primitive desires and an exaggerated craving for excitement. In his self-centered search for pleasure, he ignores restrictions of his culture. The psychopath is highly impulsive. He is a man for whom the moment is a segment of time detached from all others. His actions are unplanned and guided by his whims. The psychopath is aggressive. He has learned few socialized ways of coping with frustration. The psychopath feels little, if any, guilt. He can commit the most appalling acts, yet view them without remorse. The psychopath has a warped capacity for love. His emotional relationships, when they exist, are meager, fleeting, and designed to satisfy his

own desires. These last two traits, guiltlessness and lovelessness, conspicuously mark the pychopath as different from other men."

Generally, the opinion of most psychiatric workers is that most Psychopathic Personalities cannot be readjusted, but these authors, who are workers in the field of education, take a much more hopeful view. They state, "The treatment of the adult psychopath, while not hopeless, is far from hopeful." Because of their experience in a special type of school, they feel that by placing the psychopathic child in a proper environment, his personality can be transformed. In their last sentence they state, "If society has the will, it can protect itself against this most dangerous, and, at the same time, most lonely of human beings."

To all those who have to deal with personnel problems, this book is worthy of reading. In the appendices there are various tests and forms which would be helpful in studying the disordered personality.

CMDR. JAMES L. MCCARTNEY
USNR, RET.

MANAGEMENT OF EMOTIONAL PROBLEMS IN MEDICAL PRACTICE. Edited by Samuel Liebman, M.D., with 9 contributors. 152 pages. J. B. Lippincott Company, Philadelphia and Montreal. 1956. Price $5.00.

This book consists of the lecture material presented by the authors during the Sixth Annual Lecture Series titled "Psychiatric Problems in Medical Practice," North Shore Health Resort, Winnetka, Ill., edited by Liebman, Samuel, M.D., Medical Director.

The first lecture by Karl M. Bowman deals with the diagnoses, management and treatment of Psychiatric Emergencies such as: "suicidal impulse," "the violent patient," "refusal to eat," "drug intoxication," "complications of pregnancy," such as vomiting, "hysteria," and "panic." The pharmacology and some of the emotional problems in the use and abuse of sedatives and stimulants are discussed by Doctor Francis J. Gerty. The management of the anxious patient is discussed from the standpoint of diagnosis as well as treatment by Dr. Lewis Robbins. The psychiatry of the depressed patient is thoroughly described by Dr. Franklin Ebaugh. This is an outstanding contribution on the psychiatry of depression. The problems of depression are further discussed in the "Management of Emotional Reaction in the Male Involutional Period" by Dr. Otto Billig. The management of "the multiple complaints" is well illustrated by the case examples (George C. Ham, M.D.). A very practical chapter is on the management of over-eating, over-drinking, and over-smoking by Doctor Leo H. Bartemeier. Every physician should read and re-read the relatively few articles on "Iatrogenic" disease. The one in this volume on "Disease Produced by a Physician" should help in this very serious problem. Dr. Walter C. Alvarez is correct in stating that such disease (Iatrogenic disease) is unfortunately common. The final chapter on the Community Resources in Medical Practice is well illustrated by examples from all age groups, children, adults and the aged.

There is an unusually large amount of useful material covered by these lectures.

COL. JOHN CHORNYAK, MC, USA

THE PREMARITAL CONSULTATION. By Abraham Stone, M.D., Director, Marriage Consultation Center, Community Church, New York; and Lena Levine, M.D., Associate Director Margaret Sanger Research Bureau, New York. 90 pages. Grune & Stratton, New York and London. 1956. Price $3.00.

We herein learn that more and more couples are consulting a physician to obtain physical examinations, medical advice and answers to various problems in the medical field, prior to marriage. The authors state that "The premarital consultation is an extension of preventive medicine to the family unit." Such a consultation should include the following: premarital medical history, physical examination, serological tests, discussion of sex anatomy and sex problems, contraceptive advice if desired, discussion of social and emotional factors in marriage and information about the Rh factor and genetic problems if indicated.

Advice should be given regarding any diseases or physical defects noted at the time of consultation, although it usually requires two or three visits to the physician's office since this type of consultation is time consuming. Couples should be put at ease so that questions may be asked freely. Answers and advice by physicians should be in simple terms and practical in value. This manual contains a valuable appendix with tabulated information about marriage laws and birth control laws in various states. This manual is highly recommended for physicians who have any interest in marital or premarital problems.

COL. H. P. MARVIN, USA, RET.

NEW BOOKS

Fundamentals of Clinical Fluoroscopy, with essentials of Roentgen Interpretation, by Charles B. Storch, M.D., 2nd ed., revised and enlarged. Grune & Stratton, New York, N.Y. Price $8.75.

Cytologic Technics, for Office and Clinic, by H. E. Nieburgs, M.D. Grune & Stratton, Inc., New York, N.Y. Price $7.75.

Bladder Tumors, A Symposium under auspices of American Cancer Society. J. B. Lippincott Co., Philadelphia, Pa. Price $4.00.

Les Ecrasements Thoraciques, by Jean Garbay, Michel Garbay, and Claude Vanderpooten. Masson et Cie, Paris, France. Price 1.100 fr.

Allergic Dermatoses due to Physical Agents, edited by Rudolf L. Baer, M.D. J. B. Lippincott Co., Philadelphia, Pa. Price $3.00.

History of the U. S. Army Medical Department in World War II: *General Surgery II* (General Surgery I will appear later), Supt. of Documents, Government Printing Office, Washington 25, D.C. Price $4.25.

History of the U. S. Army Medical Department in World War II. *Orthopedic Surgery in the European Theater of Operations.* Supt. of Documents, Government Printing Office, Washington 25, D.C. Price $4.00.

Rehabilitation Monograph XI. The Effect of the New York Workmen's Compensation Law upon the Employment of the Handicapped, by Morton Lane, LL.B. The Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York 16, N.Y. Price $1.00.

Medecine et Montagne, by Dr. Jean Rivolier. Masson et Cie, Paris, France.

Adaptation to Ionizing Radiation. A. T. Krebs and J. B. Storer, Army Med. Research Lab. No. PB 121352. U. S. Dept. of Commerce, OTS, Washington 25, D.C. Price 50¢.

Graphic Summary of Selected Infectious Diseases of Importance to Public Health. P. W. Summers, Chem. Corps, USA. No. PB 121449. U. S. Dept. of Commerce, OTS, Washington 25, D.C. Price $1.50.

The Normal Human EKG and its Common Variations in Experimental Situations. T. F. McGuire, Aero Med. Lab. No. PB 121528, U. S. Dept. of Commerce, OTS, Washington 25, D.C. Price $2.00.

Orthostasis and the Kidney, J. P. Henry, Wright Air Devel. Ctr. No. PB 121382. U. S. Dept. of Commerce, OTS, Washington 25, D.C. Price $3.00.

Studies in Respiratory Physiology. W. O. Fenn, A. B. Otis and H. Rahn, Univ. of Rochester. No. PB 121572. U. S. Dept. of Commerce, Washington 25, D.C. Price $6.00.

The Third National Cancer Conference, 1956. Symposia and Panel Discussions, The American Cancer Society and The National Cancer Institute. J. B. Lippincott Co., Philadelphia 5, Pa. Price $9.00.

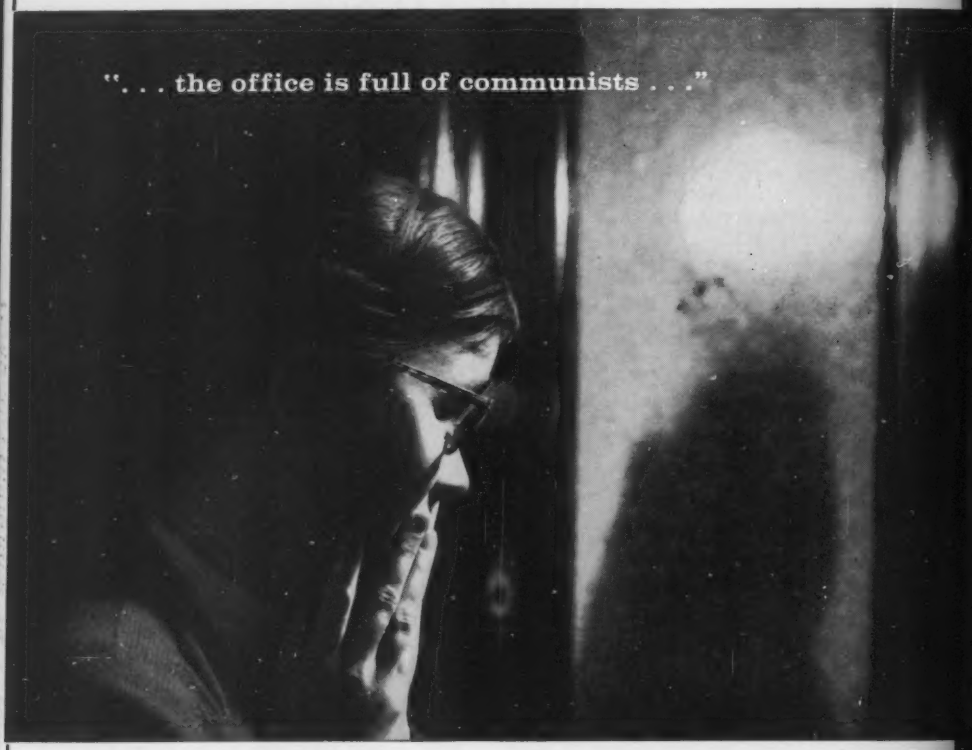
The Marine Officer's Guide, by Gen. G. C. Thomas, USMC (Ret.); Col. R. D. Heinl, Jr., USMC; and Rear Adm. A. A. Ageton, USN (Ret.). U. S. Naval Institute, Annapolis, Md. Price $5.75.

How to Survive on Land and Sea—Individual Survival, written and revised by the V-Five Association (Committee), Frank C. Craighead, Jr., Ph.D., and John J. Craighead, Ph.D., U. S. Naval Institute, Annapolis, Md. Price $4.00.

Garde D'Haiti, Twenty Years of Organization and Training by the United States Marine Corps 1915-1934. Compiled by J. H. McCrocklin, U. S. Naval Institute, Annapolis, Md. Price $4.50.

The Treatment of Fractures, Vol. II. by Lorenz Bohler, M.D. Grune & Stratton, Inc., New York and London. Price $17.50.

'Thorazine' relieved this patient's severe anxiety and fear. She was able to continue working and soon began to gain insight.



'THORAZINE' CASE REPORT

patient: 29-year-old single female. Severe anxiety of two months' duration. Complained to police of car following her home nightly. Afraid to quit job because of fear of reprisal by communists in her office.

response: Intensity of symptoms diminished rapidly when 'Thorazine' was given. After one week, "remarks were no longer directed at communists." Patient quit her job and got a new one.

After three months of 'Thorazine' therapy, patient stated that she "felt fine" and her "work was very good." "Maybe it was my nerves and imagination, but that's behind me."

This case report is from the files of the patient's physician.

THORAZINE* one of the fundamental drugs in medicine

Smith, Kline & French Laboratories, Philadelphia

*T.M. Reg. U.S. Pat. Off. for chlorpromazine, S.K.F.